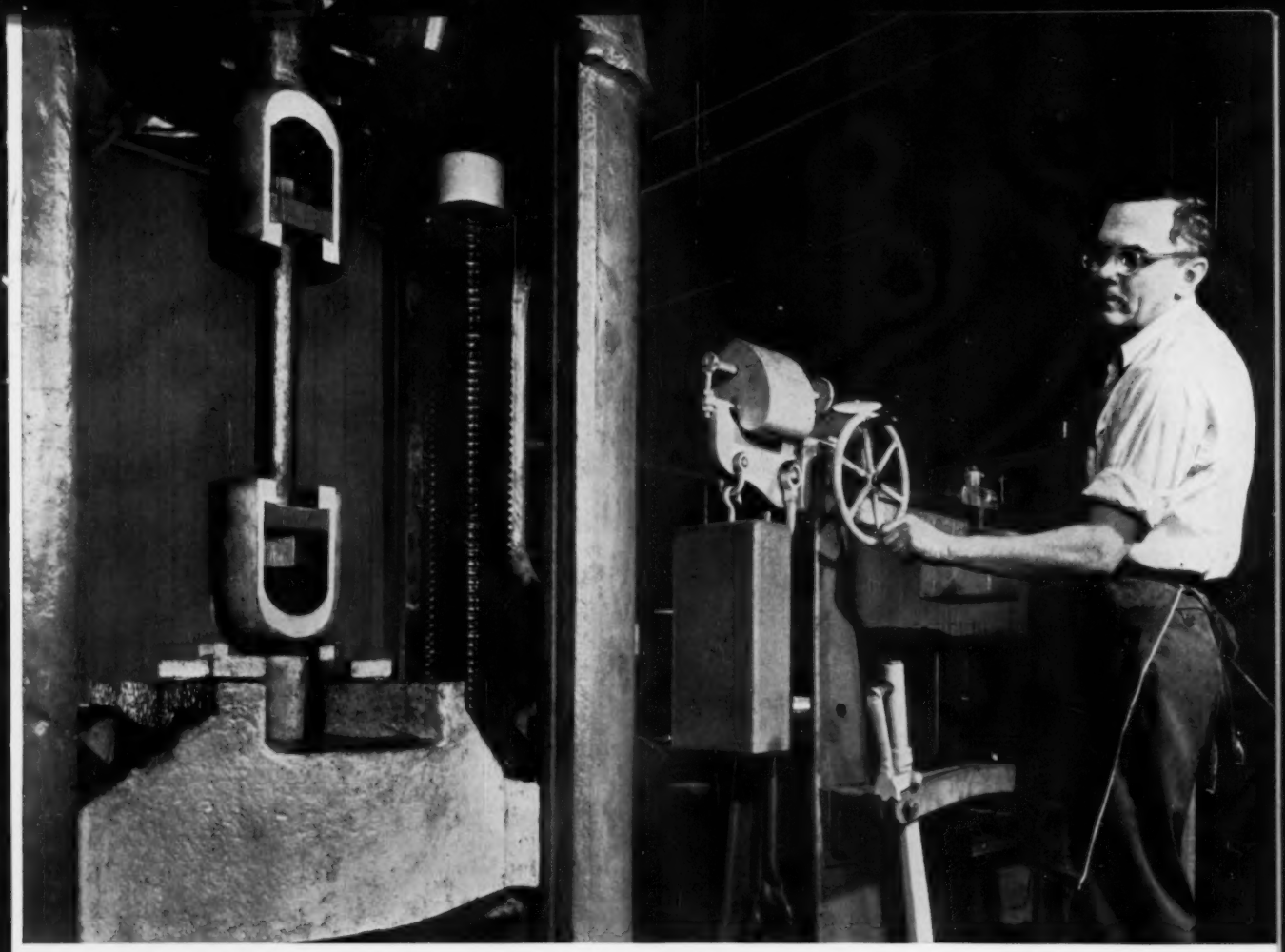
The IRON AGE
uly 17, 1958 A Chilton Publication The National Metalworking Weekly

Special Survey Report

How to Plan For Higher Profit Margins P. 35



In this tensile testing machine, Bethlehem High-Strength Structural Bolts are tested full size in commonly used diameters. We can test bolts as large as 2 ½ in. diameter, such as the one shown.

We test high-strength bolts at full size to determine their strength on the job

There's no guesswork about performance when you use Bethlehem High-Strength Structural Bolts. The strength of these heat-treated carbon steel bolts is controlled by periodic tests made on full-size bolts in the sizes commonly used in bridge and building construction.

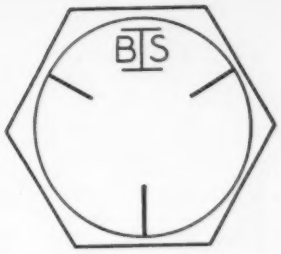
All heat-treatment lots of Bethlehem High-Strength Bolts are tested in accordance with the requirements of ASTM Spec. A-325-55T, which covers all sizes of bolts for numerous applications. Because of the full-size testing, used in preference to standard test bars or turned specimens, any non-uniformities in the bolts, either in structure or tensile properties, can be fully evaluated.

If you would like to have more information about the manufacture, testing, or installation of high-strength structural bolts, simply write the Bethlehem sales office nearest you.

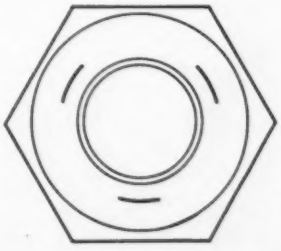
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



Bethlehem High-Strength Bolts are identified by trademark, plus three raised radial lines, on bolt head.



Typical American Standard Heavy Semifinished Nut used with high-strength bolt. It meets ASTM Specification A-325, and is identified by three depressed arcs in the crown.

THE IRON AGE
Chestnut and 56th Sts.
Philadelphia 39, Pa., SH 8-2000

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The IRON AGE

July 17, 1958—Vol. 182, No. 3

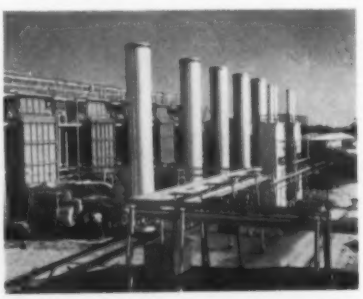
Digest of the Week in

★Starred items are digested at right.

NEWS ARTICLES

HOUSTON INDUSTRY

Growing Fast—Petroleum, chemicals, and metals have been pacing



Houston's rapid growth since 1946. Among the city's many attractions is a 50-mile channel to the sea.
P. 21

ENGINE BUILDER

Makes a Comeback — Hercules Motors was on the brink of bankruptcy a year ago when a new management took over. In a series of bold moves, it has pulled out of the red and may set a precedent in marketing.
P. 24

EXECUTIVE HOUSE

Concrete-Rebar Giant — Executive House, Chicago's 40-story, 370-ft-high structure is the nation's highest building of concrete and rebar. About 2000 tons of reinforcing bar went into its construction.
P. 25

CONSUMER CREDIT

Hits Buying—Auto paper con-

Metalworking

PROFIT PLANNING: The authors of this week's special survey report, C. W. Randle and A. W. Swinyard (l to r), are specialists with the consulting firm of Booz, Allen & Hamilton. Here they analyze the profit margin patterns of several major metalworking groups. P. 35

tinues to decline, but other consumer credit gains. Consumers are apparently reluctant to extend their credit for new cars. P. 31

FEDERAL SPENDING

Having Effect—U. S. pump priming is putting some zip into the economy, although many still fear inflation. Business spending lags, will have to improve for a real recovery. P. 53

FEATURE ARTICLES

AUTOMATED LINES

Cope with Flexibility—Complex lines switch easily to different models for one manufacturer of electric refrigerators. Each of the three lines can handle at least four different designs and can produce any of these in several different sizes. Maximum use is made of mechanical loading of spot and seam welders. P. 75

SURFACE CHECKS

Aid Tool Control—A lightweight portable electronic instrument measures surface finishes to save expense of changing tools too soon, or spoiling work by waiting too long. The unit measure roughness from 1 to 1000 microinches. P. 79

BRAZING AND HARDENING

Combine in Fluxless Method—By combining brazing and hardening steps into a single operation production is speeded and costs are reduced. But the real benefits come in using fluxless brazing. It's done by selecting a continuous furnace with hydrogen atmosphere. P. 80

JOIN DRILL-PRESS UNITS

To Benefit Operator—Combine two or more drill presses with automatic feed and clamping units and a worker's output will be multiplied. It's a way to get a maximum rate without going to specialized equipment. P. 82

REACTOR VESSEL

Solve Countless Problems—The fabrication of a 91-ton stainless steel reactor vessel for the Enrico Fermi Atomic Power Plant required the touch of skilled craftsmen. They were aided by massive equipment to cope with problems. P. 84

MARKETS & PRICES

USSR DUMPING

British Viewpoint—IRON AGE editor analyzes British viewpoint on USSR metals policies; also discusses British reaction to the progress which the Reds have made in steelmaking. P. 23

AUTOMAKERS GLOOMY

Facing 10-Year Low—Many uncertainties loom for automakers in the remaining months of 1958. Among them are steel and labor costs. But most important—customers. P. 48

TOOL SELECTION

Keep Repair in Mind—Equipment buyers will find it pays to spend for machines with maintenance-reducing features, says GE's L. F. Lewis. He lists features that purchasers should insist on. P. 57

DETROIT ON STEEL

Automakers Will Go Easy—The automakers are going slow on new model output. And they are gearing their steel orders to this slow production pace. The auto buyer holds the key. P. 123

INDUSTRIAL TRUCKS

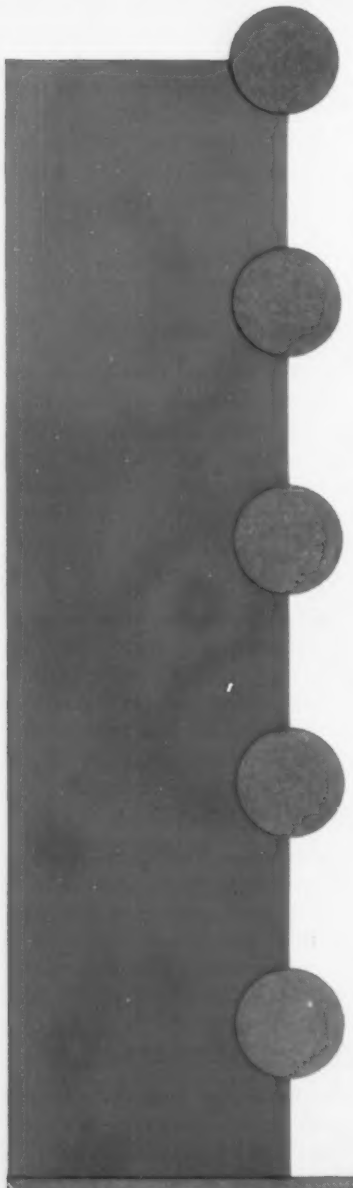
A Battle for Sales — Industrial truck makers are trying to coax buyers with expanded lines offering improved performance. However, they may have to boost prices to meet increasing costs. P. 124

NEXT WEEK

NUMERICAL CONTROLS

The Years Ahead—While developments in numerically controlled machine tools for the military are making news, what about the long-range commercial outlook? Next week's feature will include an analysis of this metalworking field.

60 CYCLE INDUCTION MELTING



A famous metallurgist once wrote: "50% of all rejects can be traced to faulty melting and pouring." When molten metal is overheated, important alloy ingredients are lost by burning. Castings or billets may be porous from combustion gases absorbed by the molten metal. Frequently, unwanted alloy ingredients are picked up from the containers used in melting. If the temperature of molten metal flowing into a mold strays from the optimum, defective castings will result. In a quiet melt alloy ingredients may not dissolve properly, and the metal cast will not meet specifications. Finally, there is the problem of nonmetallics suspended in the melt which cause occlusions and other difficulties in the end product.

60 CYCLE INDUCTION MELTING, properly applied, is probably the biggest single step that can be taken to overcome these traditional melting problems. The method is unique in its combination of two factors: Heat is generated only in the molten metal, and the entire melt is stirred by electromagnetic pressure. Furthermore, high melting rates can be concentrated in a small space. —No part of the furnace is hotter than the metal. Combustion gases are absent and controlled atmospheres can be used. The container is constructed of refractories inert to the molten metal. Temperature control of unprecedented precision is inherent in the method. Electromagnetic stirring assures complete dissolving of all ingredients and a uniform alloy. Suspended nonmetallics are deposited in the electromagnetic pressure area.

These are basic reasons why 60 CYCLE INDUCTION MELTING has had such a spectacular growth in the postwar period. Modern plants require high production rates with controlled quality, yet can assign only a minimum of skilled labor to each operation. 60 CYCLE INDUCTION MELTING minimizes hard labor in melting. It enables process control to substantially decrease the effect of human error. Cost reductions are reflected throughout each step of fabrication of a casting or billet to its end use.

60 CYCLE INDUCTION MELTING, firmly established for thirty years as the predominant production method for melting brass, has recently been applied on a much larger scale. In the last ten years, as new furnace designs became available, the method has been rapidly adopted by many progressive companies in the fields of aluminum die casting, aluminum extrusion, aluminum wire, aluminum coating, leaded copper alloy casting, zinc die casting, and galvanizing of strip in the steel mills. Well over one thousand 60 CYCLE INDUCTION MELTING furnaces are now operating in these new fields.

Our 60 CYCLE INDUCTION MELTING furnace takes many different forms to meet the needs of all these industries. Unit production rates now range from 150 pounds to 40 tons per hour. We specialize in the development, design, and manufacture of standard and custom-built furnaces to meet each requirement. If there is a production melting problem in your operation which may benefit from a basic change in method, we should be glad to discuss the possibilities with you.

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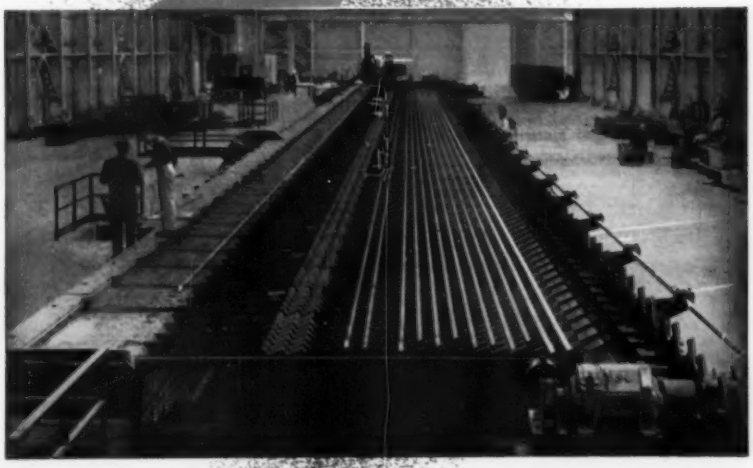

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If you make or use conveyor rolls, TV masts and antennas, scaffolding, gate posts, or any other tubular products or parts that must fight rust, why not get all the facts about Armco ZINCGRIP Tubing? Fill in the coupon. (If you are looking for tubing with superior resistance to heat and corrosion, ask about Armco ALUMINIZED STEEL Type 1 Tubing.)

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Management's Challenge: It Must Meet Labor Head On

Few businessmen in high places want to bust unions—even if they could; which they can't. But all of them want Labor's monopoly ended.

It may be a long time before the law curtails Labor's excessive power. But today management could do a better labor relations job than it is doing—and we refer to that part wherein management deals and negotiates with the unions.

It may seem preposterous, but many a top management knows little or nothing about the way labor unions operate or how workers actually think.

More often than not, aggressive and alert management as it climbs to the top rung forgets what makes unions tick and what sometimes causes workers to reject apparently fair proposals. That's why management has industrial relations people on the job. But too often it pays too little attention to its own experts.

This year and next is the best period in years for management to meet labor head on with arguments, force, power, and stamina. If the forward march of uneconomical wage — and price—rises is not stemmed quickly all of us are in for serious trouble. That is no argument against wage hikes and fringe earned with increased productivity.

Management needs as counselors and consultants men who know the unions, men who know how the worker thinks and reacts, and who know what will pan out and what won't. Such people—if obtainable—can help management and its industrial relations get results which could bring about smaller increases, a better break for the company, and an improved morale in the plant.

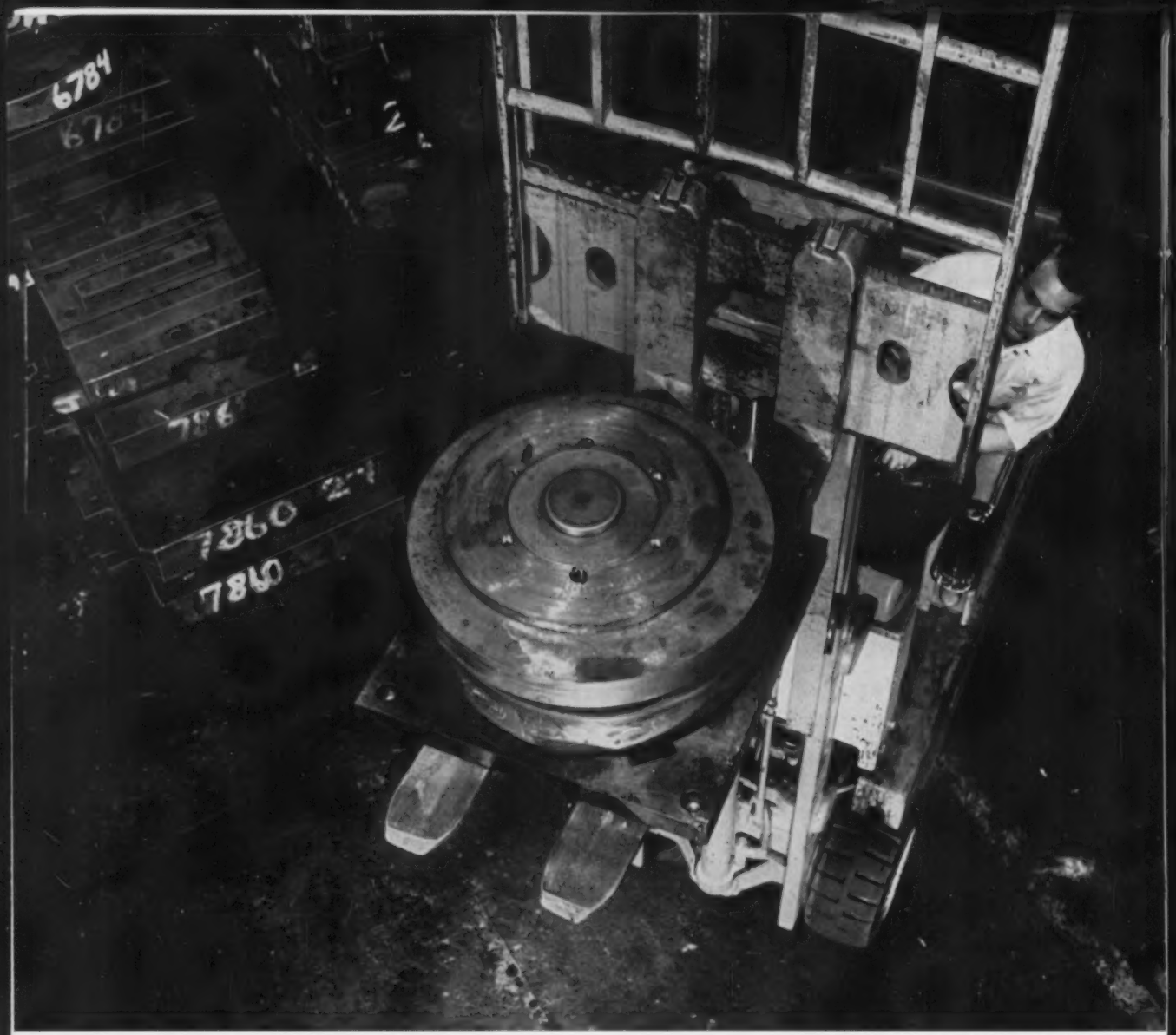
An unreasonable fear of adverse public reaction to a stiff management front will invariably give labor a head start on wages and fringe. Government anxiety, social worker attitudes in industry, and divided policies within industry should not bar the use of guts and courage by management when it knows it is fair and right.

It would be well, too, for larger firms to remember that they do have a responsibility towards smaller firms. An unrealistic industry-wide contract can help wipe out smaller—not marginal—business.

It takes tough-minded negotiators, realistic economists, non-stuffy executives, and—at times —barroom talk to meet the unions on a realistic bargaining level.

Tom Campbell

Editor-in-Chief



His trip to the "bank" just saved someone $15,000

This die being "withdrawn" from COMMERCIAL's "die bank" of more than 20,000 available die components will save someone the cost of completely new dies—will mean that a COMMERCIAL stamping customer will be able to get custom produced parts at a substantial saving in tooling expense.

Every day units from our extensive "die bank" are being utilized to produce an infinite variety of stamped component shapes for many industries. Very often these existing die components are combined with partial new tooling to produce custom stampings to meet the most specialized requirements.

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Modern press equipment – 100-ton to 2000-ton capacity—bangs out more hits per hour and contributes to lower unit cost for medium to heavy stampings. And, over 30 years of experience in the forming of metals has developed the skill which makes the toughest of stamping jobs look easy.

Just a blueprint, sketch or prototype of your part in the hands of our engineers could be the key to important savings on your very next job. Address Commercial Shearing & Stamping Company, Dept. X-29, Youngstown 1, Ohio.

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Industrial Leadership

Sir—Tom Campbell's fine editorials have long been encouraging but his comments on "Who Runs Business — Management or Politicians?" in the July 3rd issue incite me to direct appreciation and additional comment. It is implicit in our system that the "public" and "social forces" do govern ultimately.

The misfortune in our situation is that not enough of the people who are banded together in "companies" (owners, managers, and workers) find sufficient community of interest in their enterprise to resist the artificial controls by smear or threat which you have pointed out.

In the ranks of management are most of the best qualified leaders. Would that you could induce more of them to speak out on behalf of their own policies and ideas and the basic principle of "remuneration in proportion to contribution."—H. Edward Cable, Weld Tooling Corp., Pittsburgh, Pa.

Sir—Congratulations on your editorial "Who Runs Business—Management or Politicians?" in the July 3 issue of IRON AGE. More truth has never been written and I particularly enjoyed reading the last paragraph where you point out how we are slowly going socialistic and most people don't see through it.

May I suggest that your article be published on the front pages of all the newspapers in the U. S. A.

Also, is there no one in this wonderful country of ours who can tell the unions they must stop raising wages every year, which naturally raises prices all along the line? Generally, the unions are getting 10 pct more every year.

On that basis a bricklayer earning $4.15 an hour today will get $17.34 an hour or over $36,000 a year by 1973. Then where will the price of houses be? Where will the poor pensioner be with a fixed income based on 1958 prices? Will Social Security be increased accordingly?

All these things should be brought to the attention of the public.—C. M. Luth, Loftus Engineering Corporation, Pittsburgh, Pa.

Workers Rights

Sir—Please send me a copy of the article, "Workers Turn Tables; Step Up Complaints Against Unions," contained in the June 26th issue of IRON AGE.

The article was excellent and indicative of the fine items contained in your publication.—W. R. Benzee, Personnel Director, Marco Industries, Inc., Womelsdorf, Pa.

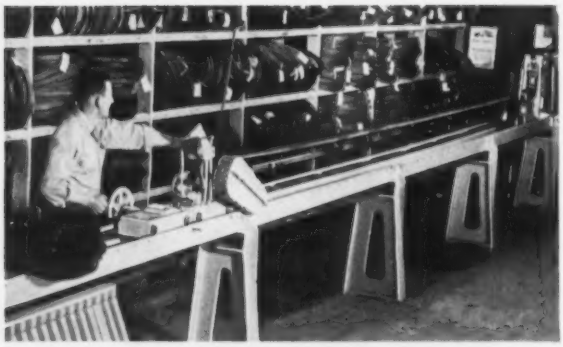
Aluminum Castings

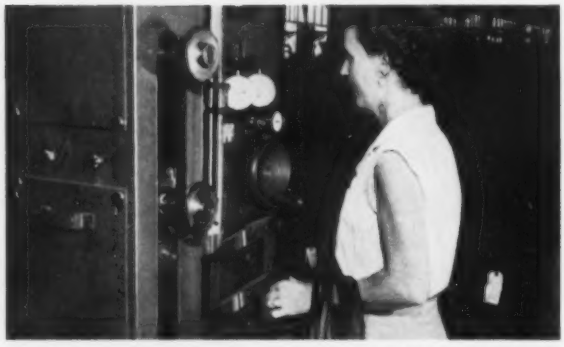
Sir—I would like to obtain a reprint of the article "What to Do About Porosity In Aluminum Castings" in the May 15 issue of IRON AGE.

This article was interesting and useful.—A. N. Costa, Pittsfield, Mass.

"He's definitely shop foreman material, J.B. . . . I like the way he butters me up."

Only V-Belts with the Green Seal give you





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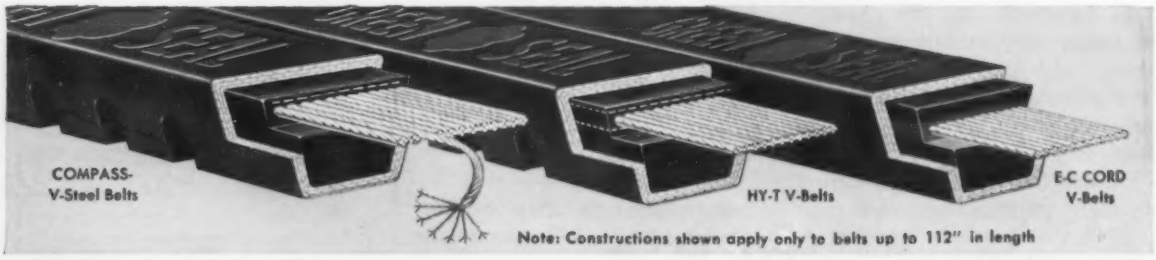

Note: Constructions shown apply only to belts up to 112" in length

'Watch "Goodyear Theater" on TV—every other Monday, 9:30 P. M., E. D. T.

Compass, E-C Cord, Hy-T, Green Seal–T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

Versatile Metal

Harvey Aluminum Co. recently presented a $25,000 check engraved on aluminum to the building fund drive for a new general hospital at The Dalles, Oregon.

The check, described as the first of its kind, was issued by Lawrence A. Harvey (left in photo). Performing the metalworking art of check canceling are Bank of America bookkeeper Margie Sanchez and vice-president Thomas C. Deane.

New Puzzler

"One bright and cheery morning, J. Scratchmoritch started to dunk a slightly stale bagel (often termed a "petrified doughnut") in a cup of coffee, which happened to be nine-tenths full. The bagel accidentally slipped from his hand into the cup, where it floated. He noted that no coffee was spilled and that the cup was now full to the brim.

He also noted (a very observant and meticulous fellow, this Scratchy) that the diameter of the cup (assume the cup to be a hollow semi-sphere) was equal to the diameter of the bagel, and that the diameter of the hole in the bagel was 2 in. less than the outside diameter. The bagel had one-third of its volume submerged under the stated conditions. What was the diameter of the cup mouth or bagel?"

Puzzler Answer

Some argue for 2½, some for 9, but we'll argue for 3 bushels of bad apples that the bad farmer farmed. (June 19 puzzler).

Winners are: Emil Novomesky, Curtiss-Wright Corp., Patterson, N. J., R. W. Leary, Leeds & Northrup Company, Phila., Pa., Wesley C. Cropper, American Steel Band Co., Pittsburgh, Pa., R. O. Bailey, Amchem Products, Inc., Ambler, Penna., Sherm Telling, W. S. Tyler Co., Cleveland, Ohio, Alice Schmidt, McDonnell Aircraft Corp., St. Louis, Mo.

Also, Philip E. Fuller, Keystone Sole & Shank Co., Lynn, Mass., Dave Jaffe, Jaffe Steel & Supply Co., El Monte, Calif., E. A. Chimner, Flint, Mich., Sam Rothstein with assistance from his daughter Etta, Fairchild Graphic Equipment Inc., Plainview, Long Island, N. Y., Mr. J. E. Divilbiss, International Harvester Co., Indianapolis, Ind., Erwin Loewy, New York, Dave Newcomb, Newburyport, Mass.

"Gentlemen, this is going to be a brainstorming session. I will shoot out ideas in rapid-fire succession and you see how fast you can approve them."

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FIRST COST WELL JUSTIFIED BY PRODUCTION!

This is the press that produces all rectangular hydraulically compressed bundles at a lower cost than any press on the market today. Production is continuous, averaging 12 to 15 tons per hour. It is impossible to make a chair back or L shaped bale with the Harris TG-801. Installation cost is low, and the foundation can be prepared by shallow, bulldozer excavation.

Average No. of bales per hour....35
Average size of bale..20" x 34" x 16"

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COMING EXHIBITS

Western Packaging & Materials Handling Show—Aug. 11-13, Civic Auditorium, San Francisco. (Clapp & Poliak, Inc., 341 Madison Ave., New York 17.)

Chemical Show—Sept. 9-12, International Amphitheater, Chicago. (National Chemical Exposition, 86 E. Randolph St., Chicago 1.)

Iron & Steel Show—Sept. 23-26, Cleveland Public Auditorium, Cleveland. (Association of Iron & Steel Engineers, 1010 Empire Bldg., Pittsburgh 22, Pa.)

Western Tool Show—Sept. 29-Oct. 3, Shrine Exposition Hall, Los Angeles. (American Society of Tool Engineers, 10700 Puritan Ave., Detroit 38.)

Packaging & Materials Handling Show—Oct. 14-16, Coliseum, Chicago. (SIPMHE, 327 S. LaSalle St., Chicago 4.)

Metals Show—Oct. 27-31, Public Auditorium, Cleveland. (American Society for Metals, 7301 Euclid Ave., Cleveland 3.)

Plastic Show — Nov. 17-21, International Amphitheater, Chicago. (The Society of the Plastics Industry, Inc., 250 Park Ave., New York 17.)

MEETINGS

SEPTEMBER

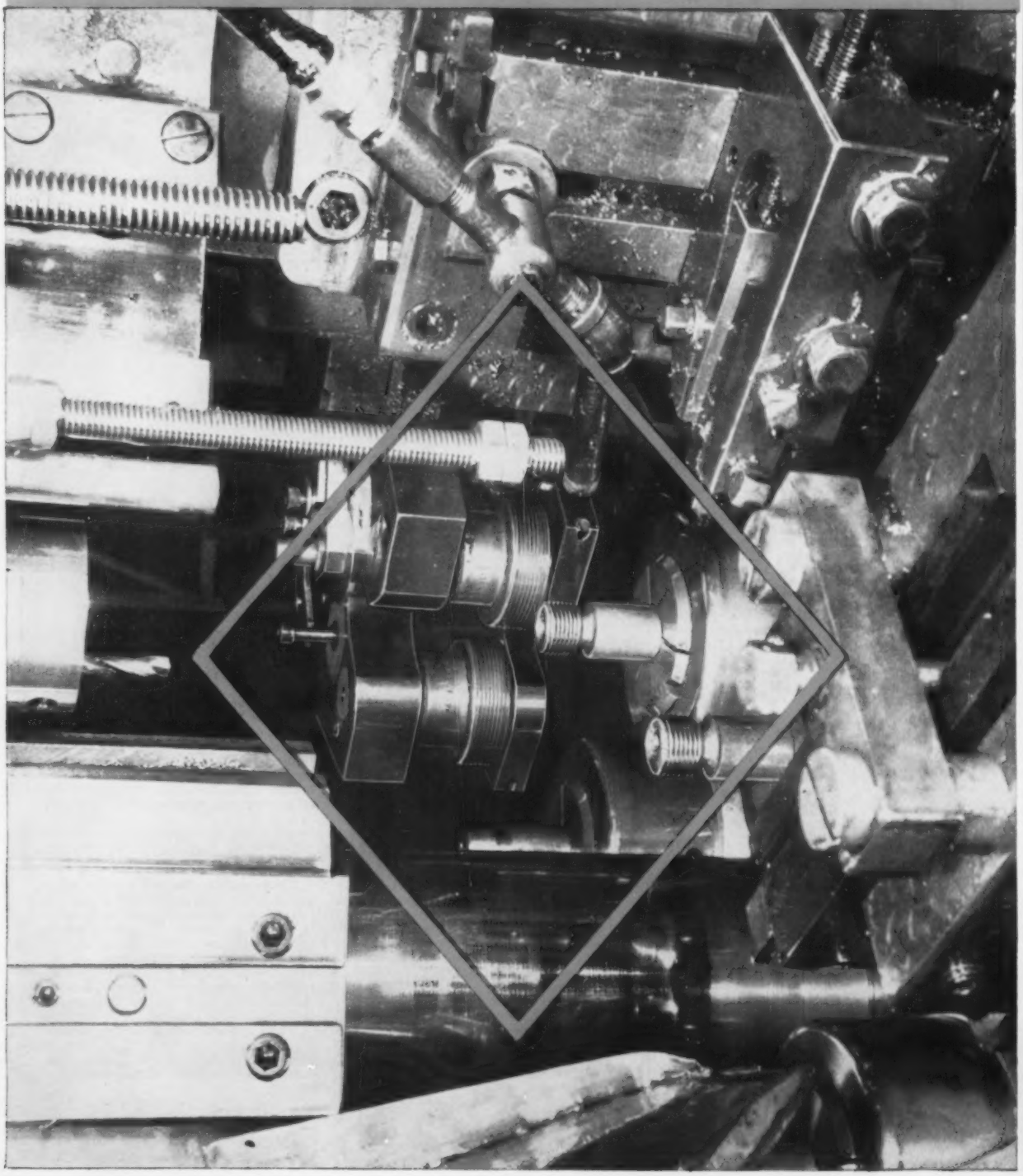
National Petroleum Assn.—Annual meeting, Sept. 10-12, Hotel Traymore, Atlantic City, N. J. Society headquarters, Munsey Bldg., Rm. 958, Washington, D. C.

Steel Founders' Society of America—Fall meeting, Sept. 22-23, The Homestead, Hot Springs, Va. Society headquarters, 606 Terminal Tower, Cleveland 13.

The Material Handling Institute, Inc.—Joint industry fall meetings—Sept. 22-24, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, Suite 759, One Gateway Center, Pittsburgh 22.

(Continued on P. 16)

1/2" taper pipe thread



rolled with the LANROLL attachment

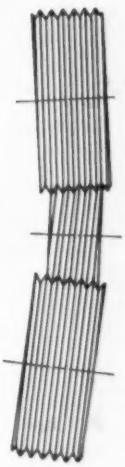
The recently developed LANDIS Method for precision rolling of taper pipe threads is shown at the Mac-It Parts Company, Lancaster, Pennsylvania, in the production of pipe plugs.

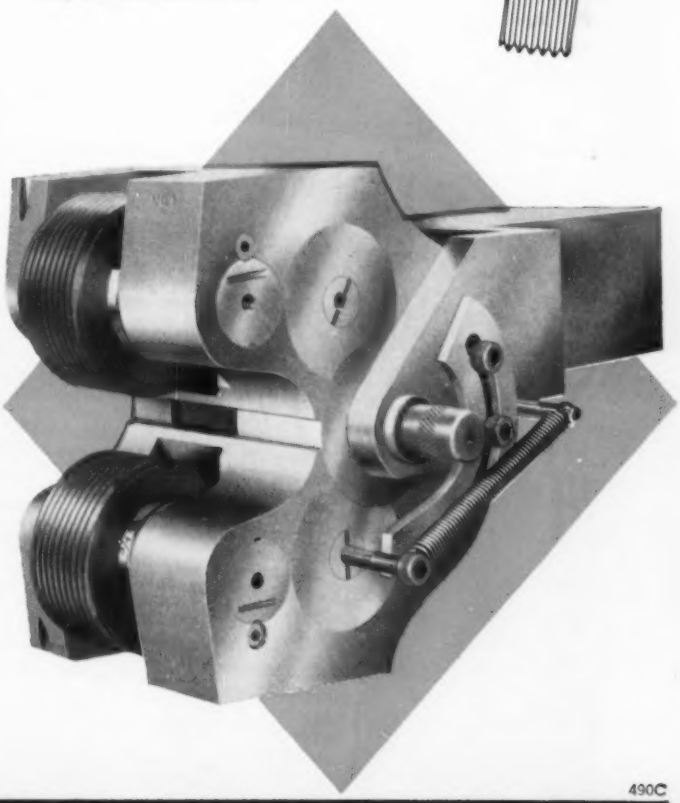
1/2" 14 pitch American Standard Taper Pipe threads are being rolled 9/16" long to dry seal specifications on 4140 steel (207 Brinnell). The #22GA LANROLL Attachment (with a pipe range of 1/8" to 1") is used in the third position on a National Acme Bar Automatic —45,000 pieces are threaded with each set of rolls.

To produce the taper, the rolls of the LANROLL Attachment are supported on carbide shafts inclined to the required thread taper. This design enables the use of parallel rolls (see diagram) which reduces slippage between the workpiece and rolls. With reduced slippage, roll life is materially increased. In addition, attachment stabilization (limited sidewise movement) is greatly improved to permit rolling directly to a shoulder with safety.

A highly desirable design feature of the LANROLL Attachment is the ability to remove the attachment from the shank by simply withdrawing the shank pin. By this means, machine tooling changes or attachment servicing can be accomplished without disturbing the original set up. This same construction facilitates, through the use of a gage, a precision, safe means for locating the attachment on the tool slide in respect to the high point of the machine's feed cam. Also, it allows attachment tipping to avoid indexing interference on screw machines having a limited tool slide movement. The same LANROLL Attachment will produce either straight or taper threads by using the proper rolls and an important but limited amount of auxiliary equipment. They provide wide range coverage while retaining the rigidity of a non-adjustable tool—assuring operation for every size within its range as though it were exclusively engineered for the particular work being threaded.

For complete information on the LANDIS Method of rolling taper threads and other outstanding design principles, please write and request Bulletin G-96.





490C

LANDIS *Machine* COMPANY
WAYNESBORO • PENNSYLVANIA • U. S. A.

EXHIBITS, MEETINGS

(Continued from P. 13)

Air Moving & Conditioning Assn., Inc.—Annual meeting, Sept. 22-25, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, 2159 Guardian Bldg., Detroit 26.

Porcelain Enamel Institute — Annual meeting, Sept. 25-27, The Greenbrier, White Sulphur Springs, W. Va. Society headquarters, 1145 19th St., N. W., Washington, D. C.

The Electrochemical Society, Inc.—Semi-annual meeting, Sept. 28-30 and Oct. 1-2, Chateau Laurier, Ottawa, Canada. Society headquarters, 1860 Broadway, N. Y.

Pressed Metal Institute — Annual meeting Sept. 28-Oct. 2, The Cloisters, Sea Island, Ga. Society headquarters, 3673 Lee Rd., Cleveland 20.

OCTOBER

National Assn. of Sheet Metal Distributors—Fall meeting, Oct. 5-8, Marlborough Blenheim Hotel, Atlantic City. Society headquarters, 1900 Arch St., Philadelphia.

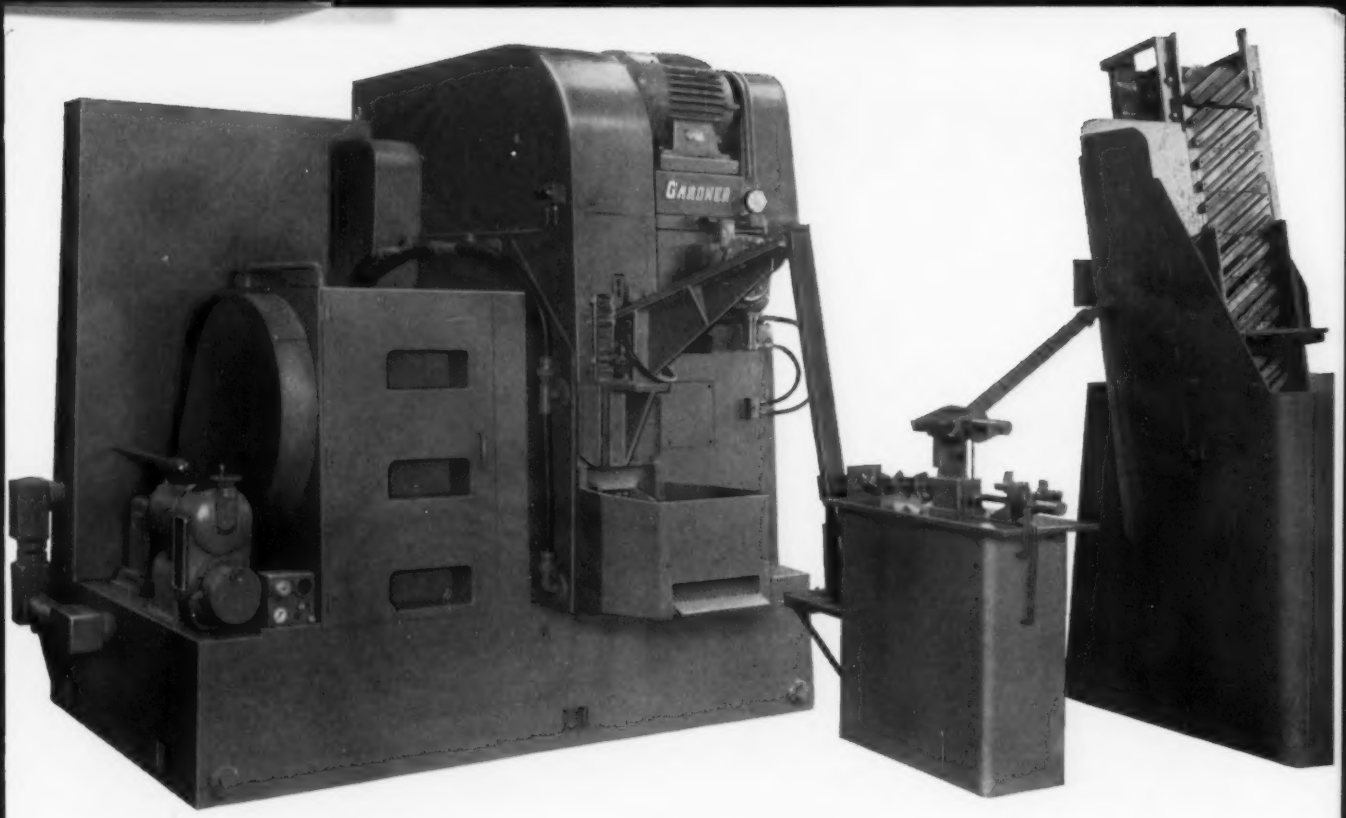
Truck Body & Equipment Assn., Inc.—Annual convention and exhibit, Oct. 6-8, Ambassador Hotel, Atlantic City. Society headquarters, 1616 K St., N. W., Washington, D. C.

Gray Iron Founders' Society, Inc.—National annual meeting, Oct. 8-10, Sheraton-Park Hotel, Washington. Society headquarters, 930 National City-E 6th Bldg., Cleveland.

The Wire Assn.—Annual convention, Oct. 13-16, Chalfonte-Haddon Hall, Atlantic City. Society headquarters, 543 Main St., Stamford, Conn.

American Machine Tool Distributors' Assn.—Annual meeting, Oct. 15-17, Sheraton Plaza, Boston. Society headquarters, 1900 Arch St., Philadelphia.

Rail Steel Bar Assn.—Semi-annual meeting, Oct. 20-22, Blackstone Hotel, Chicago. Society headquarters, 38 S. Dearborn St., Chicago.



Gardner 723 dual horizontal spindle grinder rough and semi-finish grinds 3000 valve lifter bodies per hour.

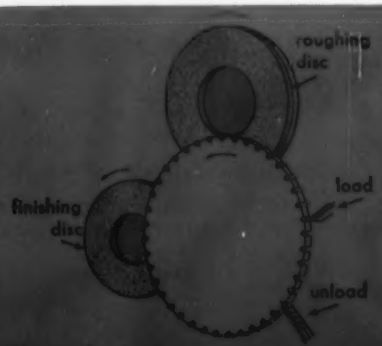
Gardner automatic operation increases output . . . grinding hydraulic valve lifter bodies

production data

Operation	Grinding closed end of hydraulic valve lifter body
Material:	Cast iron
Rate:	3000 per hour
Stock Removal—	
Rough cut:	.012″-.038″
Semi-finish cut:	.006″-.008″
Uniformity:	.002″
Squareness:	.0005″

special machine equipment

hopper feed
transfer attachment
automatic loading and unloading
rotary carrier
two Gardner sizing units with automatic feedback
centralized lubrication
head zeroing gages
power-operated increment head feed
30″ & 23″ Yellow-Rim Wire-Lokt® discs



GARDNER

precision disc grinders

BELOIT, WISCONSIN

Sheet and strip—more than 20 kinds—and Ryerson delivers fast!

You name it—Ryerson has it.

Hot and cold rolled sheets. Pickled and oiled sheets. Tight-coated galvanized and galvannealed sheets that won't flake or peel when you form them. Stainless sheets. Ryex expanded metal. Perforated sheets. And many others, all in a wide range of gauges and pattern sizes.

Need special sizes? Modern equipment cuts them to your specifications quickly and economically, in blanks, straight lengths or coils.

Ryerson also offers a complete line of metalworking machinery and tools to meet virtually every requirement.

When you want sheet and strip, give Ryerson a call—it pays!

RYERSON CERTIFIED QUALITY

RYERSON STEEL

Member of the INLAND Steel Family

Principal Products: Carbon, alloy and stainless steel—bars, structurals, plates, tubing, industrial plastics, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE • CINCINNATI • CLEVELAND DETROIT • PITTSBURGH • BUFFALO • INDIANAPOLIS • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

Mill with Double Table

First American vertical boring mill with its table separated into inner and outer sections is in design stages. Both sections will be able to run locked together, separately at different speeds, or possibly in opposite directions. The double table allows both inside and outside cuts to be taken at different speeds. Smaller jobs can also be more economically run on inside table at higher speeds.

Steelmaker Clears up Query

In case you've been wondering if U. S. Steel is trying to withdraw from its Venezuelan ore commitments, because of its announcement to invest in Canadian Quebec lean ore for concentrating, the answer is a firm no. U.S.S. intends to go along with long range plans in Venezuela: Mining at Cerro Bolivar and close by concessions as the demand requires. Nothing has been changed by temporary unrest in Venezuela or Canadian plans.

Poor Man's Sintering Works

Successful use of the Ferrocoke sintering process is reported in an East Coast blast furnace. Ore fines are mixed with coal, charged into the coke ovens. The resulting agglomerate forms 60 to 80 pct of blast furnace burden in present practice. Furnace operators believe a 100-pct charge will work as well.

Foamed Silica Stands Heat

Bring to boil pure silica, add foaming agent, allow to cool. Yield: An acid-resistant insulating and refractory material. It's insulating value through 1 in. is equal to 18 in. of acid brick at 250°F. It has withstood 1600°F furnace heat for more than 2 years with no evidence of deterioration.

High-Carbon Scrap Gets Use

Use of high-carbon steel scrap, called "hard scrap," continues to grow in foundry practice. Running over 0.35-pct carbon and commanding a price of at least $3 over punchings and plate scrap, the grade is recommended for reducing overall metal costs. Despite its high purchase price the grade is proving out to the extent that another major Midwestern captive foundry is expected to begin building its scrap purchases around this single grade. Big problem is scarcity of supply, as majority comes from auto wrecking yards as crankshafts, gears, and auto springs.

Right-to-work to Hit Unions

Right-to-work laws have union leadership frankly concerned. The anti-union shop measures will come up on the ballot this fall in three key industrial states: Ohio, California, and Washington with four others probable. With 18 states already having right-to-work laws, adoption in any of these states would give right-to-work an added boost. Unions are most concerned about Ohio's record of not following union party lines.

Cold-Finished Bar Market

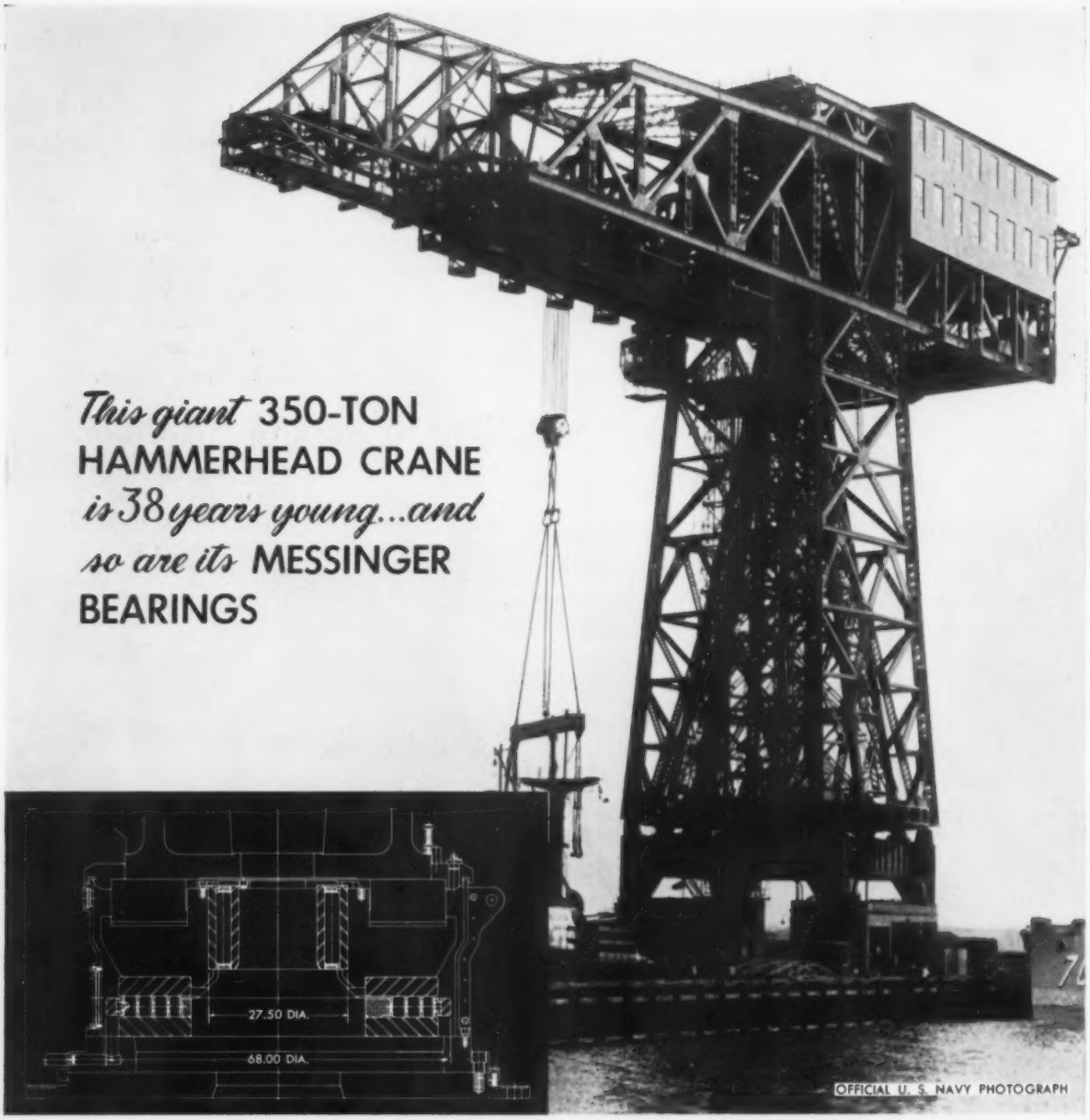
Help for the small-diameter cold-finished bar market is coming from an unexpected source. Screw machine purchases of bar stock, after running at a low level for several months, appear to be strengthening in the past 2 weeks. Those who have already felt the push say that it's coming from smaller screw machine shops and that buying is on a rush basis.

New Rates to Benefit Steel

Freight costs will drop sharply August 1 with removal of 3-pct excise tax on transportation. The cost of hauling iron ore from the upper lakes to Pittsburgh will be 20¢ a ton less. One steel mill expects to cut $2 million from its annual freight bill. Overall savings to shippers will run at nearly $500 million a year.

Russian Aluminum in U. S.?

"I'm almost sure Russian aluminum is coming into U. S. markets," asserts a member of the domestic industry. Here's how it happens: Russian pig and ingot goes to Belgium, France, and other European countries where it's semi-fabricated, losing its identity. Then it's shipped here. In the first quarter last year Benelux countries shipped 1176 tons. The first quarter this year they sent 1824 tons.



This giant 350-TON
HAMMERHEAD CRANE
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BALL AND ROLLER BEARINGS • FEATHERWEIGHT TO HEAVYWEIGHT

Houston's Oil and Gas Are Big Magnet for Metalworking

Petroleum and chemicals play an important part in Houston's impressive growth in the southwest.

However, metal production and manufacturing, a strong third, are making impressive records.—By T. M. Rohan.

▪ Salt, sulphur, lime, oil, natural gas and a 50-mile, deep water channel to the sea—these are the attractions Houston offers industry.

With them the city—eighth largest in the U. S.—has built an industrial empire of petroleum, chemicals, and metals. Houston and its metropolitan area of Harris county have doubled in population since 1940. The area is now home to 12 pct of all Texans.

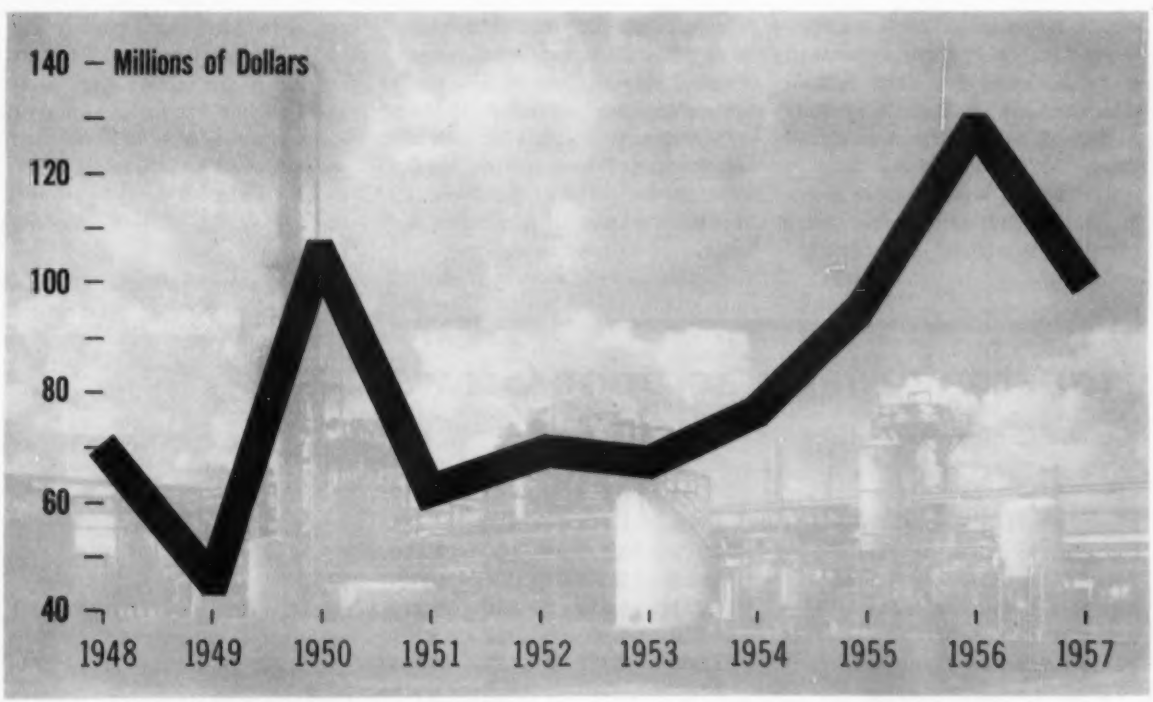
How It Grew — During World War II manufacturing in the county tripled. Since 1947 it has increased 2½ more times. Value of Houston's manufactured products—which hit $4.8 billion in 1956—probably topped $5 billion last year. In value added by manufacture the southwest city ranks 16th in the country.

Houston's fundamental industries, are, of course, oil and natural gas. Oil production in the Houston-Harris county area alone was 536 million barrels up to 1952. In the general area of the 45 gulf coast counties it was 4.5 billion barrels.

Oil and Gas—Petroleum and gas reserves are still high. In gas reserves the Gulf area has 51 pct of total for all of Texas and 25 pct of the national total. About 14 offshore oil fields have been discovered

Charting Houston's Industrial-Business Growth

Commercial-Industrial Construction Contracts



Source: Houston Chamber of Commerce

with 1.5 billion gallons of oil reserves. There are nine major gas fields with 10 trillion cu ft of natural gas.

In post war expansion, however, chemicals have moved ahead faster. In that period chemical plants spent $2.5 billion, refineries $2 billion and metal plants $1.5 billion.

Big on Petrochemicals — About 85 pct of U. S. petrochemical plant capacity is concentrated in the Gulf Coast area and will probably be expanded another 170 pct by 1975. It now employs about 50,000 workers with an annual payroll of $300 million. It turns out one-half the U. S. output of plastic intermediates, 75 pct of the polyethylene, all the synthetic glycerin, and over half the synthetic rubber.

The metals industry is a surprisingly strong industrial third in the Houston area. Since World War II investment in this field has been $1.5 billion.

Impact of Metalworking—Economic impact of metalworking and production on the area rivals the oil industry which Houston principally serves. By 1955 fabricated metals, foundries, oil tools, and primary metal plants represented an investment of $395 million. Annual sales were $767 million. A monthly payroll of $14 million was spread among 36,000 employees.

The metals investment at Houston is divided among fabricating plants ($69 million), foundries ($7 million), oil tools ($66 million), and primary metals ($251 million.)

The Big Spenders—Most metals plants continue to expand, by this year expect to have invested $72.5 million. Here's how it's earmarked: $5.8 million for fabricating plants, $1.1 million for foundries, $5.5 million for oil tool makers, and $60 million for primary metal producing.

Gulf States Tube Corp. is typical of this expansion. The firm, a subsidiary of Michigan Seamless Tube Co., decided to build a seamless tube mill in 1956. Halfway through construction it was found the mill would have to be larger. Then a few months later plans were again revised with a further expansion, the third in 18 months. Original plans had the mill using stock shipped from Michigan to turn out cold drawn seamless tubing. Now, however, it will have its own hot mill.

Steel Is a Must—Growth of the steel industry in Houston is logical. The area is the hub of the oil country goods market. Houstonians are frustrated by the sight of one third of all U. S. tubular goods going through their port from other places with little tube made locally.

Steel shipments to Harris county manufacturers amounted to over 500,000 tons in 1954 or half the total of all Texas steel shipments. Their value was $92.6 million, according to Dept. of Commerce figures.

Steel Buyers Complain — Oil country goods form the largest import, most barged down from Pittsburgh and Chicago along the Ohio and Mississippi Rivers. Other tonnage comes in from overseas.

Steel users in the Houston area are remote from supplying mills. In times of shortage they have trouble getting steel and complain bitterly. So there is heavy pressure for more local capacity. Thirty-five companies in a Chamber of Commerce survey stressed this need. Wants specified were for stainless, alloy, cold-drawn, and sheet steel of all types. One respondent wanted a "steel mill which will sell customers established since 1950."

Houston Mill—Houston now has a mill of its own—the Sheffield Div. of Armco Steel. It was built by the Defense Plants Corp., in World War II on the site of a previous mill making ship plate. With an annual capacity of 1.2 million tons—being expanded to 1.7 million—it turns out sheared carbon plate, re-bars, wire rod, wire products, and heat treated alloy steel.

Besides the new tube mill being put in by Michigan Seamless Tube Co., other steel producing facilities are still in the talking stage. Jones and Laughlin has had an option on acreage for a tube mill for years. As yet there's no indication of when it will be started.

Metals employment in the Houston area breaks out in this pattern: Oil field machinery and tool building about 12,000, the Sheffield mill, 4000 employees, foundries have 1000 employees, structural fabricating accounts for 4300 workers, shipbuilding for 3200, and can-making employs 1300.

Where Aluminum Stands—Houston and Texas have an important stake in aluminum production with the state ranking second behind Washington in U. S. output. There are three aluminum plants in the area, two within 200 miles of Houston and a third in central Texas.

Houston's Manufacturing Grows

(Harris County Manufacturing Statistics)

	1956	1954	1947	1939
Manufacturing Establishments	1,600	1,421	916	655
Manufacturing Employees	92,500	78,038	58,600	25,600
Total Manufacturing Wages*	$438.0	$368.4	$167.0	$33.5
Average Employee Income	$4,750	$4,663	$2,860	$1,310
Value of Manufactured Products*	$4,800	$4,200	$1,862	$337
Value Added by Manufacturing*	$1,008	$882	$385	$106

*In Millions of Dollars

How British See USSR Dumping

It Raises Havoc in World Metals Markets

British are concerned over disruption of metals markets, particularly tin and other nonferrous metals. Steel is of less export concern.

British steelmakers, however, are impressed by Red steelmaking progress. — By G. F. Sullivan.

RUSSIAN METAL: Aluminum from the Russian plant at Kemerovo, Siberia, is loaded on flatcars, headed for markets. British Board of Trade is studying Aluminum Union Ltd. complaint that Russian metal is being dumped on their market. It could mean a restrictive tariff.

▪ There is more concern in Great Britain about Russian dumping of tin than there is about the Soviet steel export potential. For, as a member of the London Metals Exchange explained to the IRON AGE, USSR nonferrous exports disrupt world prices in addition to their political effect. Recent examples: Tin and aluminum.

Russia has been raising havoc with world tin markets in recent months. No one knows how much she produces or what the stockpile may be. In an effort to clear up the condition, Russia has been invited to join the International Tin Agreement.

Council's Viewpoint — Georges Peter, president of the International Tin Council (world marketing and price stabilization body) explained that if Russia joins the Council, she "will have to submit statistics about her production—which would fix her export quota."

Betting there is that Russia will turn down the invitation to join the council, and sell tin where and when she pleases. Result will be continued trouble for the buffer pool in its efforts to stabilize world tin prices. Since Russia has never issued any useful statistics on nonferrous metals, some of the harder heads on the Exchange doubt that accurate tin data will emerge from Moscow.

Effects on Steel — British steelmakers have been somewhat closer —trade-wise—to the Russians than those of the United States in recent years. They feel that the embargo which was designed to prevent export of strategic materials to Russia has been of little or no use.

They have, of course, observed it, confining their shipments to non-strategic items like sheets and a few light bars (British shipments to USSR in 1957: 47,000 long tons of sheets and 3000 tons of light bars).

Although British steelmakers export about 15 pct of their output (U. S. '57 figure: 6.5 pct) they don't ship nearly as much to Russia as the European Coal & Steel Community countries (West Germany, France, Belgium, Italy, Luxembourg, Saar and Holland). That group shipped 450,000 long tons to the USSR last year and the trend is upward.

Impressed by Steelmaking — British steel industry delegations visited Russia in the Fall of 1955 and again during the summer of 1956. Like the U. S. delegation which returned from its Russian inspection trip last month, the British were impressed by what they saw.

In an effort to learn to what use the facts on Soviet steel had been put to use by British steelmakers. The IRON AGE queried steel industry officials in London. The answer: Unquestionably some of the techniques observed in Russia have since been put into practice in Britain.

It is impossible to put the finger on specific examples at specific mills because "one doesn't quite like to admit that one has lifted an idea from the Russians." A natural reaction. The query is further complicated by trying to decide what would have come along anyway—like sintered ore to improve blast furnace efficiency.

Engine Builder Beats the Slump

New Management Pulls Hercules Out of the Red

In a series of bold moves, this old firm has snapped back into the profit column.

A new type distributor contract may set a new marketing pattern.—By G. J. McManus.

▪ Engine makers are watchfully eying the comeback bid of Hercules Motors Corp., Canton, O.

Once a top name in the field of gas and diesel engines, Hercules had been drifting downward since World War II. Last October a new management team moved in and began a drive to lift sales and snap up the company generally.

Industrywide Impact—The steps taken may change the marketing pattern of the engine industry. They provide interesting reading for any company that faces a need to revive sales and cut costs at the same time.

Here's what's happened since October:

1. Hercules has acquired Hall Scott's line of gasoline engines; it has moved into the air-cooled engine market with the acquisition of two models developed by Lycoming Div., Avco Manufacturing Co.
2. The company has made a bold gamble for distributor support by offering a contract with important new concessions.
3. It has shaken up its internal works, reaching out for top purchasing and accounting men, doubling its development force but lopping off cost fat elsewhere.

Going Two Directions — "We're in a program of expansion and contraction," says Hercules president William L. Pringle. On the one hand, the company is expanding and updating its product line. On the other, it is making deep cost cuts and installing a system of tight cost control.

PRINGLE OF HERCULES: Fast decisions in a time of crisis.

This may seem like pulling in opposite directions, but Bill Pringle feels he had no choice. He took over a company that had two basic problems and neither of them would wait. Hercules needed new products and a revitalized sales drive.

Action—The situation went critical last year just as the new management was hanging up its coat. When the slump hit the engine industry in October, Hercules sales dropped 30 pct and the company sank into the red.

In this emergency, Bill Pringle made some fast decisions. In December Hercules bought the Lycoming Air-cooled line; in May it took over the engine division of Hall-Scott, Inc.

At the same time, existing Hercules lines were given a new development push. An improved series of three, four, and six cylinder engines was developed. The company began grooming three basic diesel engines for the motor truck market.

New Distributor Setup—To sell its new products, Hercules will rely on a distributor network that is fast being nailed down. With air-cooled engines sold on an off-the-shelf basis, Hercules felt it had to secure distributor support. It feels it has found the combination for this support in a new type contract.

The new agreement turns over Hercules warranty business to the distributor. In an unprecedented step, it turns over to him practically all accounts with makers of original equipment (fork lift, tractors, etc.). Finally, it commits Hercules to buy back excess, outmoded, or unwanted stock (100 pct the first year; 10 pct thereafter).

Distributors are reported highly enthusiastic about the new proposal. Over 50 have signed contracts. Another 20 are expected to complete the system soon.

Risks Entailed — In effect, Hercules is turning over its selling to distributors. The company has agreed to do little or no direct selling. In doing this it is taking two calculated risks. First, it is betting that it can fill supply lines with new products before initial distributor steam dies down.

By cutting in a middle man on sales, Hercules is trimming its own profit margin. This means it must cut costs not just to a competitive level but below it. And that is just what the firm is doing.

Getting Results—It is installing a modern budget control system. It has clamped down on appropriations and engineering changes. It has slashed inventory by about $1 million this year. Outmoded parts and machines are being written off and junked. Better scheduling is stepping up production volume.

All these moves are beginning to show results. The company finally broke even in March. By the end of its fiscal year on July 31, Hercules hopes to wind up with a slight profit.

Favors Self Employed

The House of Representatives is finally warming up to a plan to aid the self-employed in setting up retirement funds. It would allow deferment of taxes until age 65 on a portion of income used in retirement plans.

Maximum amount to be temporarily tax-free is 10 pct of annual net earning, but not in excess of $2500 a year. If a taxpayer is in the 50 pct bracket, the reduction would be $1250.

The Administration frowns on the tax deferral proposal. The Treasury Dept. view is that it would cost upwards of $250 million a year in revenue. A limited number of taxpayers would be given tax relief under this plan, Treasury complains.

While the chances of House passage of the bill are favorable, the fate of the measure in the Senate is uncertain.

The Chicago Skyline Rises on Rebar

▪ The new face on Chicago's skyline is Executive House, 40 story, 370-ft-high reinforced concrete structure that is the nation's highest concrete and rebar structure.

Executive House topped out last week as forms were taken from the 39th and 40th floors. The building is centered around four heavy shear walls that are two feet thick, running from top to bottom. About 2000 tons of re-roller concrete reinforcing bar has gone into its construction and Contractor C. A. Farnstrom estimates that 16,000 cu yd of concrete have been poured.

Construction Facts — The rebar runs through the floors, up through the four shear walls, and is incorporated into additional supporting columns (25-26 columns per floor) in column thickness that runs to as much as 2 by 5 ft. Each story is about 9 ft in height, with a floor thickness of a little over 10 in. The exterior is a glass curtain wall with a 4-ft high stainless steel band circling the building at each floor.

Despite the building's unusual height, the builder spliced the 1.5-.75 in. reinforcing bar used in construction, rather than welding the rebar joints.

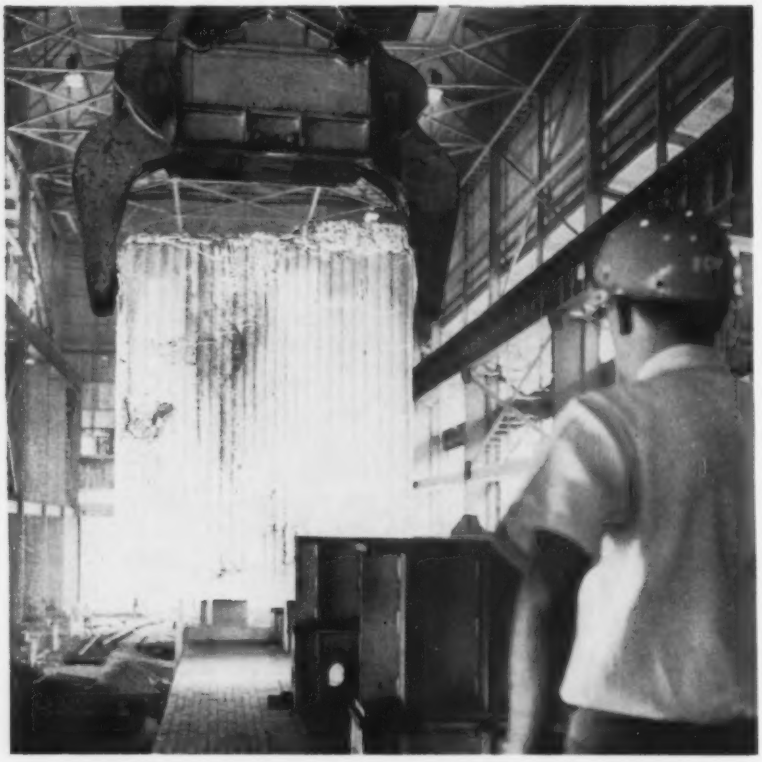
For Executives—The floors will permit 14 apartments per floor, designed for use by Chicago business firms and businessmen who want living space convenient to their loop offices. Overall cost is estimated at $6 million.

While Executive House prepared for official August topping-out ceremonies, occupants are already moving into the new 23 story Borg-Warner building, "first" in its use of high yield point alloy steel reinforcing bars with concrete construction. At least 463 tons of 4140 steel were furnished by Joseph T. Ryerson for use in supporting structural columns in the Borg-Warner building, of a total of 2300 tons used.

B-W Statistics—Unlike Executive House, the Borg-Warner structure uses welded rebar joints, in diameters of 2⅜ to 1⅝ in., providing yield strengths exceeding a 75,000 psi minimum, about twice the minimum yield point of intermediate steel grades commonly used in concrete reinforcement. Ryerson estimates the high strength rebar allowed a 25 percent reduction in thickness of columns.

Executive House

Lukens Expansion Features Bigness



RECORDS: This 66-ton steel ingot is the largest ever poured at Lukens Steel Co., Coatesville, Pa. The handling crane is described as the largest of its kind in the country. And the ingot had to be formed in the company's largest mold. The soaking pits are part of Lukens $33 million expansion program which the company hopes will give it a plate production operation unmatched in the industry.

SBA Here to Stay

Under provisions of legislation signed into law recently, Small Business Administration—The Government's multi-million-dollar lending agency—is now in business to stay.

The new law also prescribes 5½ pct as the maximum interest rate to be charged on Government loans to small firms. The maximum has been 6 pct.

The new law increases from $250,000 to $350,000 the maximum amount for any one borrower.

SBA came into existence soon after the Eisenhower Administration took office in 1953. Although both The White House and the Congress at first intended the lending agency to be only temporary, demand for permanency has risen on both sides of the political aisle.

FCC Opens Airwaves To Business

Proposed new rules and regulations issued by the Federal Communications Commission, due to take effect Aug. 1, open the airwaves to business.

A new "business radio service" will be created, giving almost any U. S. citizen engaged in a legitimate pursuit the right to use radio. A new "manufacturers radio service" will be used especially for in-plant activities.

The new radio "services" proposed by the FCC are complementary. In the manufacturers radio service, ten frequency "pairs" are allocated exclusively in the 460-470 mc band, and another five "pairs" to be shared in the 152-162 mc band.

Uses—Licenses under the manufacturers radio service are limited to plant security, production control, and materials-handling, which constitute an immediate part of the manufacturing process.

Radio for collection of raw or semi-processed materials, or the distribution or delivery of finished products must come under other services. It permits use of up to 60 watts of power on transmitters, contains no antenna height restrictions, and permits use of radio on vehicles traveling from plant to plant if materials handling is interwoven in the use.

The new business radio service is the result of a combination of frequencies formerly in the low power industrial radio service, and parts of the special industrial radio service, and the citizens radio service. Both low and high frequencies are provided.

New Kaiser Mill

Kaiser Steel Corp. is ready to roll with a new 86-in. hot strip mill at its Fontana, Calif., plant.

"This new mill is one of the most important facilities in the company's current $214 million expansion program," explained Jack L. Ashby, Kaiser vice president.

The mill will convert a six-ton steel slab into a coiled tin mill hot band 1/16-in. thick, 40-in. wide, in about two minutes.

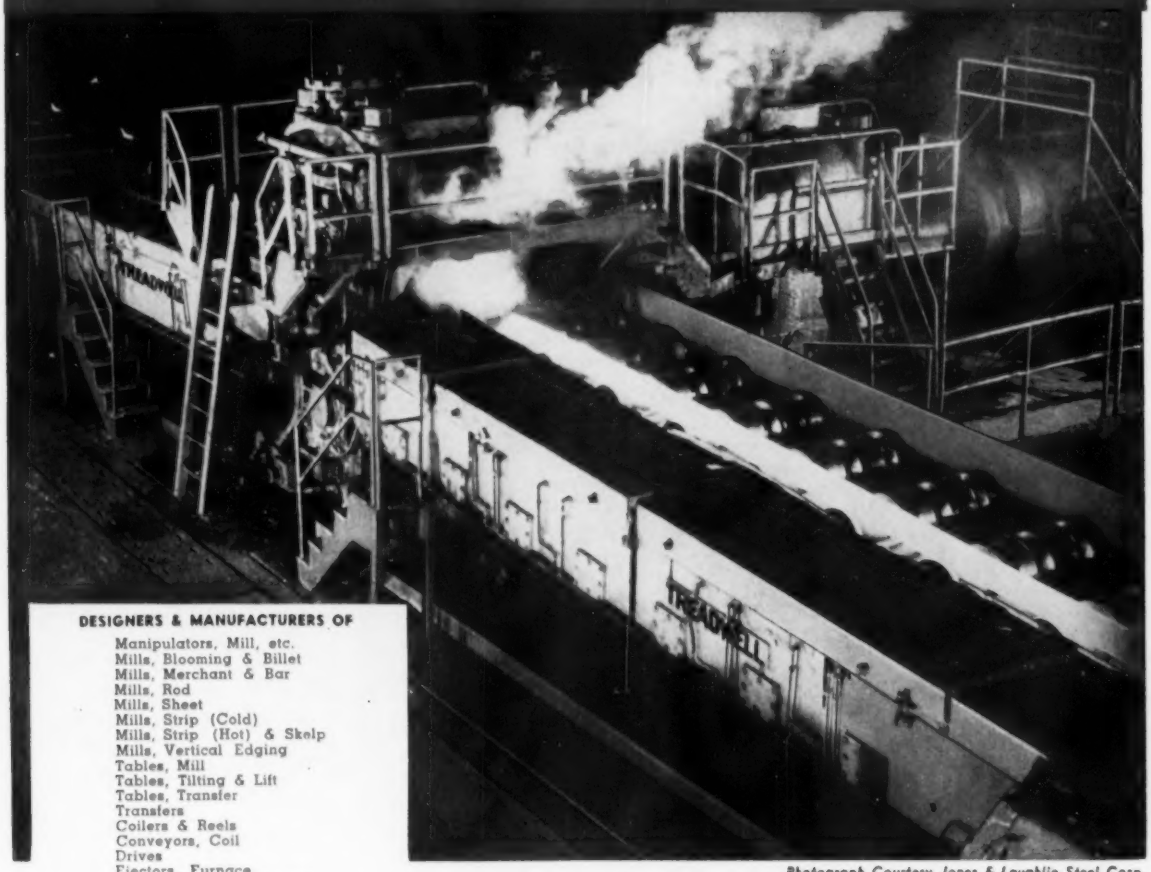
Western Tinplate

A new high-speed, electrolytic tinning line has been started up at the Pittsburg, Calif., plant of Columbia-Geneva Div., U. S. Steel.

Company president L. B. Worthington expects the line to sharply boost western tin plate capacity for the canning industry.

Columbia-Geneva says the line can turn out enough tin plate to make 6000 average size tin cans in one minute.

Treadwell



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Tables, Transfer
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Photograph Courtesy Jones & Laughlin Steel Corp.

40' long 28" three-hi mill tilting tables for diamond and square pass rolling of bars, billets and blooms. Materials automatically manipulated from pass to pass with manipulators. Our Engineers will be glad to discuss your mill problems with you.

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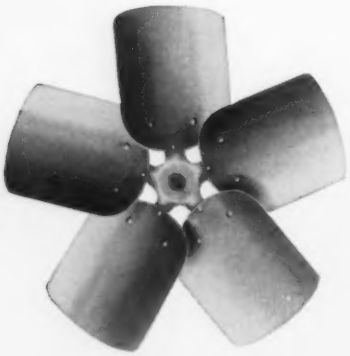
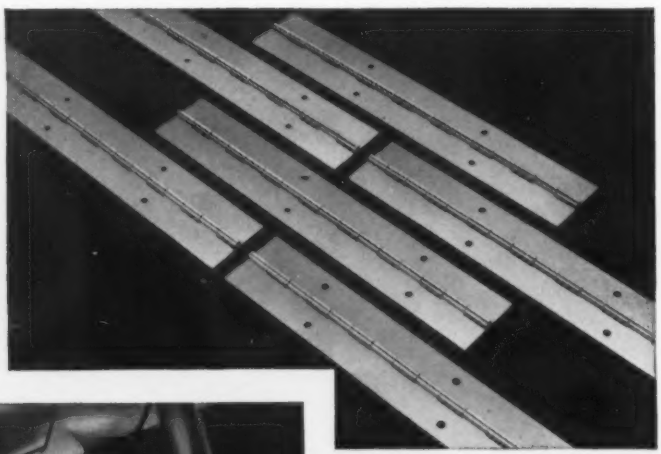


VENTILATING



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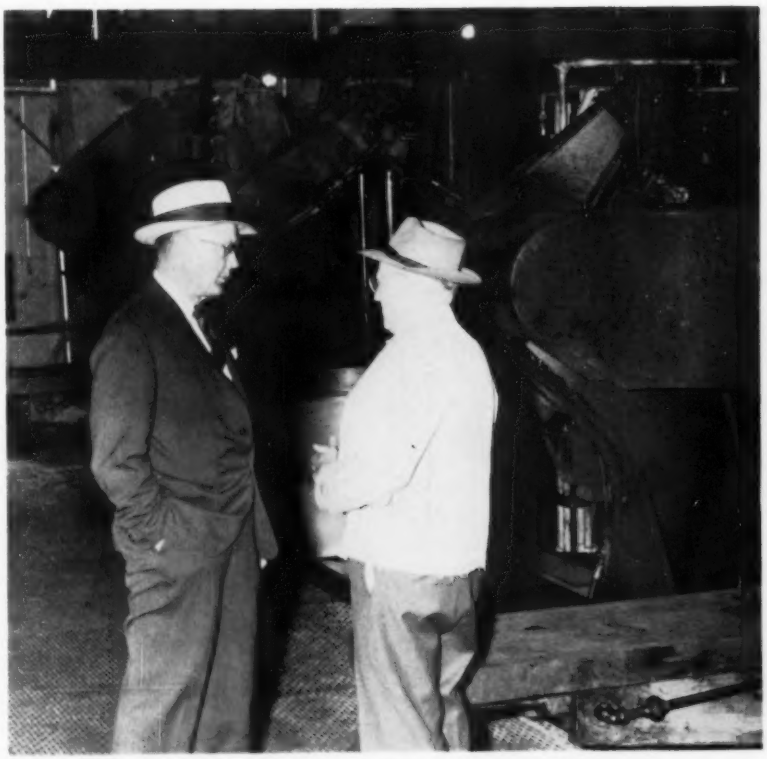
William A. Steele

Career Steelman Has No Regrets

Wheeling Steel's new president glances back over the long, hard road to the top.

It's nothing, he says, compared to the challenge that lies ahead for industry.



WILLIAM A. STEELE: (left) The present is the most interesting.

▪ After 35 years of sweating out heats in blast furnace departments and management meetings, William A. Steele made it to the top. The new president of Wheeling Steel Corp., the nation's tenth largest producer, has few regrets about the course his career has taken.

"Steel was my choice, and if I could do it again, it would be steel," says Mr. Steele emphatically.

By the time he had earned his engineering degree from the University of Pittsburgh in 1923, he decided he wanted to tie up with an industry that had "an established background of achievement and a challenging future in the field of technological development." He found all of that and more in the world's most important basic industry.

The Road Up—Born and reared in West Virginia, Mr. Steele served with the U. S. Navy during 1918-19, before entering college. By 1930 he had become blast furnace superintendent at Crucible Steel Co.

He was assistant general superintendent when he left Crucible in 1943 to go with Wickwire Spencer Steel in Buffalo. The same year he accepted a job as general manager of Wheeling's Benwood Works which took him back to the hills of West Virginia.

How He Operates—Perhaps the one trait that helped propel "Bill" Steele to the top more than any other is his thoroughness. As an administrator, he makes known his decisions in a dignified and unobtrusive manner. Yet his management team knows that behind his quiet demeanor is an abundance of knowledge, experience, and keen judgment.

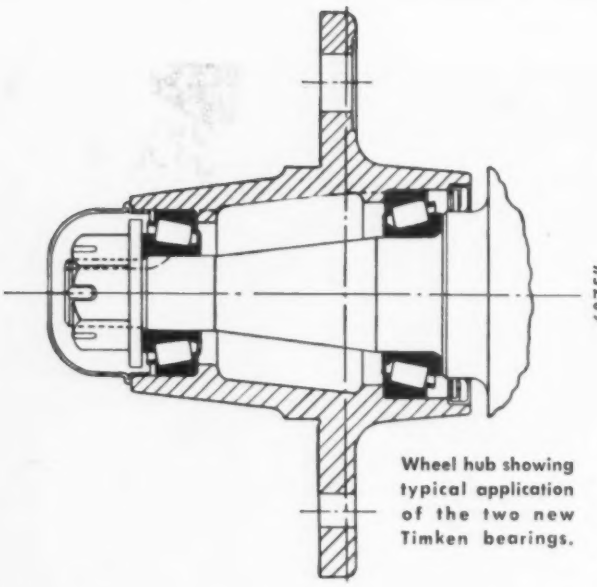
Mr. Steele's business philosophy centers on the premise that a company's success depends largely on the ability of top management to delegate departmental responsibility and to see that departments stay within the bounds of their respective job areas.

If the work in each area is done with a high degree of efficiency, he explains, "then the pieces will fit together to form an organization that will do the job." He adds that if the pieces do not fit together, there is need for reorganization.

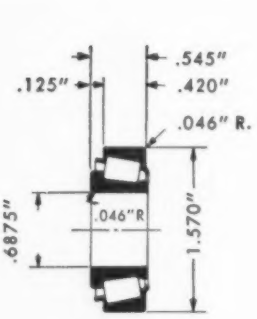
No Sentimentalist — Over the years, Bill Steele has run up against many a problem in steel production —the kind that give a man a sense of accomplishment once he has licked them. Commenting on the most interesting phase of his career, he says:

"It's undoubtedly the present. We are in a period when the welfare of our nation and its future generations is dependent upon current progress in the fields of technical know-how and human relations."

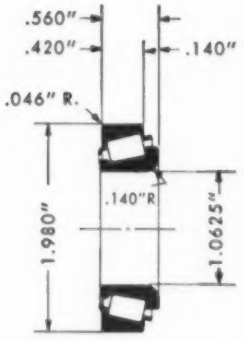
Two new, low-cost TIMKEN® bearings open new design opportunities



Wheel hub showing typical application of the two new Timken bearings.



LM 11749—LM 11710



L 44649—L 44610

WITH the two new small size Timken® bearings shown above, machine designers can now get the advantages of tapered roller bearings where they couldn't be used before. These new, smaller bearings pack high capacity in less space, and they're lower in cost. They permit more compact designs by keeping related parts smaller—provide additional savings in hub materials, seals, nuts and dust caps.

The inner bearing weighs about four oz. (.256 lb.). The outer bearing weighs less than three oz. (.181 lb.). They're the most economical single-row Timken bearings ever produced in these bore sizes. Developed originally for use in small automobiles, they can be used wherever there is a need for a low-cost bearing in this size range ($\frac{11}{16}$" and $1\frac{1}{16}$" bore). Diagram above at left shows them in a typical application on a wheel hub for a light car. Diagram above at right shows principal dimensions.

Like all Timken bearings, these new Timken tapered roller bearings are geometrically designed and precision-made to roll true. Their taper lets them take *both* radial and thrust loads in any combination. And full-line contact between rollers and races provides extra load-carrying capacity.

Our Sales Engineers will gladly give you complete data, help you design the new bearings into your machines. Timken bearings make any machine better, because Betterness rolls on Timken tapered roller bearings. The Timken Roller Bearing Company, Canton 6, Ohio, Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best

TIMKEN *TAPERED ROLLER BEARINGS ROLL THE LOAD*

TRADE-MARK REG. U. S. PAT. OFF.

How Debts Affect Buying Plans

Consumers resist extending auto debt, but order other products on instalment plans.

A $5 billion jump in auto paper in 1955 still hurts the limping auto industry.

▪ Is there any urgent significance behind the changes in instalment credit outstanding, particularly auto paper?

You can get an argument from either approach; that the drop in automotive instalment credit is a reaction to too-high credit extended in 1955; or that it's merely the result of public dissatisfaction with today's new cars.

Down in May—Exploring the instalment credit picture further, automotive paper declined significantly in May, a month which generally brings a sharp increase. But, on the other hand, instalment credit for other consumer goods took a jump, ending a four months' decline.

The drop in auto credit extended the decline to seven consecutive months. It brings the level, $14.7 billion, back to the total of early 1957.

Big Jump in '55 — Those who place great importance on credit point out that auto credit took a jump of about $5 billion in 1955, and auto sales haven't been the same since.

They believe that in periods of uncertainty, such as we are going through today, the consumer has a tendency to retire his debt, and to get out from under the burden of too many monthly payments. This school of thought believes that consumer credit will have to be retired significantly before a real boom in consumer durables develops.

What's Ahead? — The increase in other consumer durables credit never went through a comparable period of expansion as did auto credit in 1955. And it's lower now than in 1956.

This could mean that credit resistance to consumers' goods other than automobiles is declining, with an increasing prospect of good sales for the rest of this year.

Apparently credit resistance is still a strong factor in the auto picture.

Social Security Costs to Climb

Good Vote Getter—You're likely to be paying more within a few months for worker social security coverage.

Momentum is building up in the House Ways and Means Committee, and, in an election year, it is likely to become law. Social security legislation has been a proven vote-getter in the past and Congress is likely to try it again.

Could Raise Base—The present law calls for no increase in payroll tax percentages before January, 1960. But additional revenue could be raised by increasing the taxable pay base by perhaps $600 a year.

As you should know, top limit on the amount of pay subject to the 2¼ pct levy is $4200, for a limit of $94.50. This is matched by the employer.

If the base is lifted to $4800, the annual tax becomes $108, or $13.50 more for each covered employee earning $4800. And in 1960, the rate becomes 2¾ pct. Employers would then pay $132 per year for each employee.

What For? — Where will the money go? Special attention may be given to persons who retired before Sept., 1954, whose benefits run somewhat behind those of people who retired subsequently. Another possibility is for so-called cost-of-living boosts.

A third possibility would be added payments under the Federal-state public assistance program, with higher benefits for the needy aged and blind, disabled, and dependent children.

Sales Pay Rises

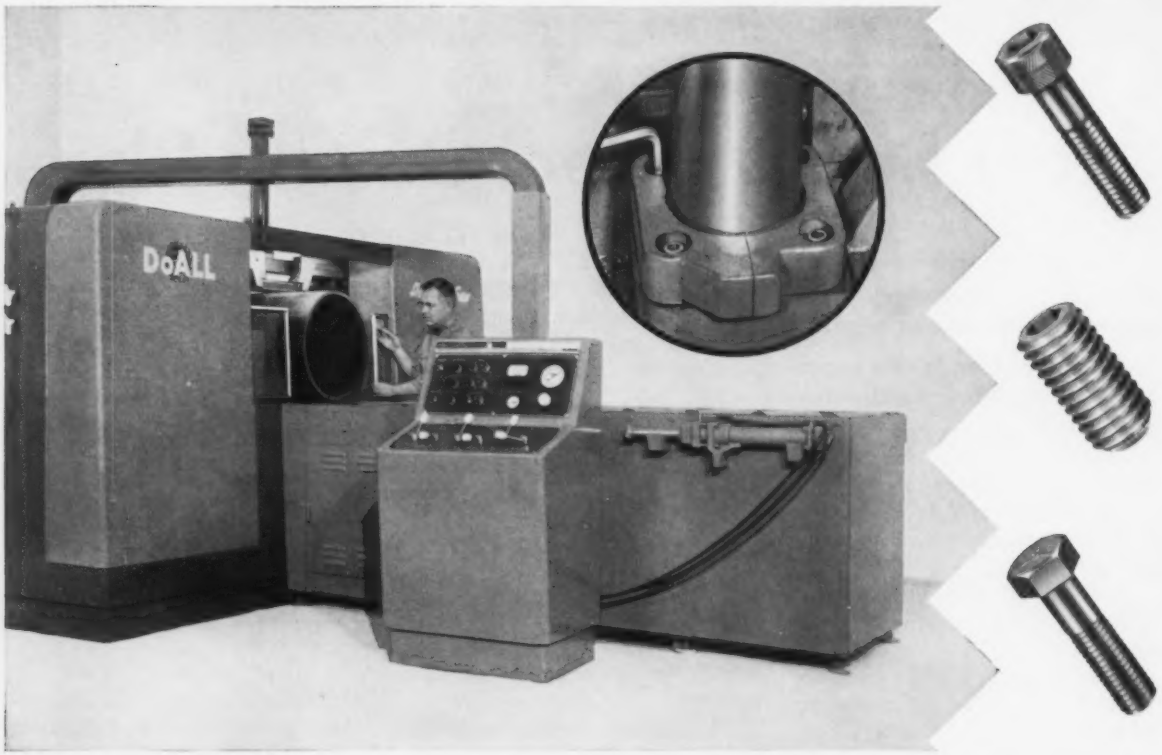
In spite of the general business decline, industry's salesmen are still doing all right this year.

A survey of 32,000 sales personnel of manufacturing companies, just released by the American Management Assn., shows that the average salesman is earning 4.2 pct more than last year.

This is probably well ahead of the gain for average middle management, which has suffered considerably from across-the-board cuts.

Although average earnings of industrial products salesmen are higher than those selling consumer products, the earnings of consumer salesmen increased 6.9 pct, while industrial products salesmen gained only 3.2 pct.

Reflecting the trend toward incentive plans, more than 75 pct of firms pay bonuses and/or commissions, ranging from 10 pct to total compensation.



Stanscrew fasteners meet DoALL standards for high strength, rigidity, "clean" design

This outstanding machine was developed by the DoALL Company to handle industry's largest, toughest cut-off jobs. Not a beefed-up model of existing machines, this "biggest band saw built" is a unique new design. As one example, the cutting head travels vertically, but cutting takes place on the lower edge of the top saw band.

The new design of this unit, Model C24, therefore represents an entirely new concept of rigidity, applied power, and precision control. These basic considerations dictated the selection and application of every part . . . including, of course, the fasteners.

Small wonder, then, that DoALL's design engineers, after consultation with Stanscrew's fastener specialist, selected Stanscrew socket cap screws for vital applications such as attaching hydraulic cylinders. These reliable fasteners provide the high strength needed. Correctly applied, they give assurance against misalignment even after extensive use—a must in this precision machine. And, by permitting flush, snag-free surfaces, the fasteners also contribute to the C24's superior styling.

Like DoALL, other leaders of American industry are learning the advantages of calling in a Stanscrew specialist when a new product is on the drawing boards. His wide experience can often suggest ways to cut fastener or assembly costs . . . for example, by substituting a standard fastener for a costly special. He can make suggestions from Stanscrew's complete line of over 4,000 types and sizes, always in stock and quickly available.

So whatever your requirements in fasteners, call your Stanscrew distributor today. He will gladly arrange for a prompt visit from the Stanscrew fastener specialist.

STANSCREW FASTENERS

CHICAGO | THE CHICAGO SCREW COMPANY, BELLWOOD, ILLINOIS
HMS | HARTFORD MACHINE SCREW COMPANY, HARTFORD, CONNECTICUT
WESTERN | THE WESTERN AUTOMATIC MACHINE SCREW COMPANY, ELYRIA, OHIO

STANDARD SCREW COMPANY 2701 Washington Boulevard, Bellwood, Illinois

"Joe Magarac" Puts On The 3000 Ton Squeeze

Like he had four hands, this mighty man of steel grabs a white hot 90 inch 120 ton ingot . . . kneads, rolls, forges it to relative length and size . . . for what? A 50 ton bending roll . . . a 40 ton turbine rotor . . . a tough forged steel shaft to drive an ocean liner or aircraft carrier . . . a rugged spindle for a rolling mill? Joe doesn't know—he just bears down with his 3000 ton 4 way squeeze. The Quality Control men know. If Joe could hear, they'd tell him.

Specially trained, long-experienced metallurgists, chemists, engineers check physical properties and quality standards from the beginning of the steel-making. Modern optical, pyrometric and scientific instruments test for quality every step of the way until the finished forging is swung to the railroad car.

Constant improvement in forging and casting technology and Quality Control procedures assure a job well done here.

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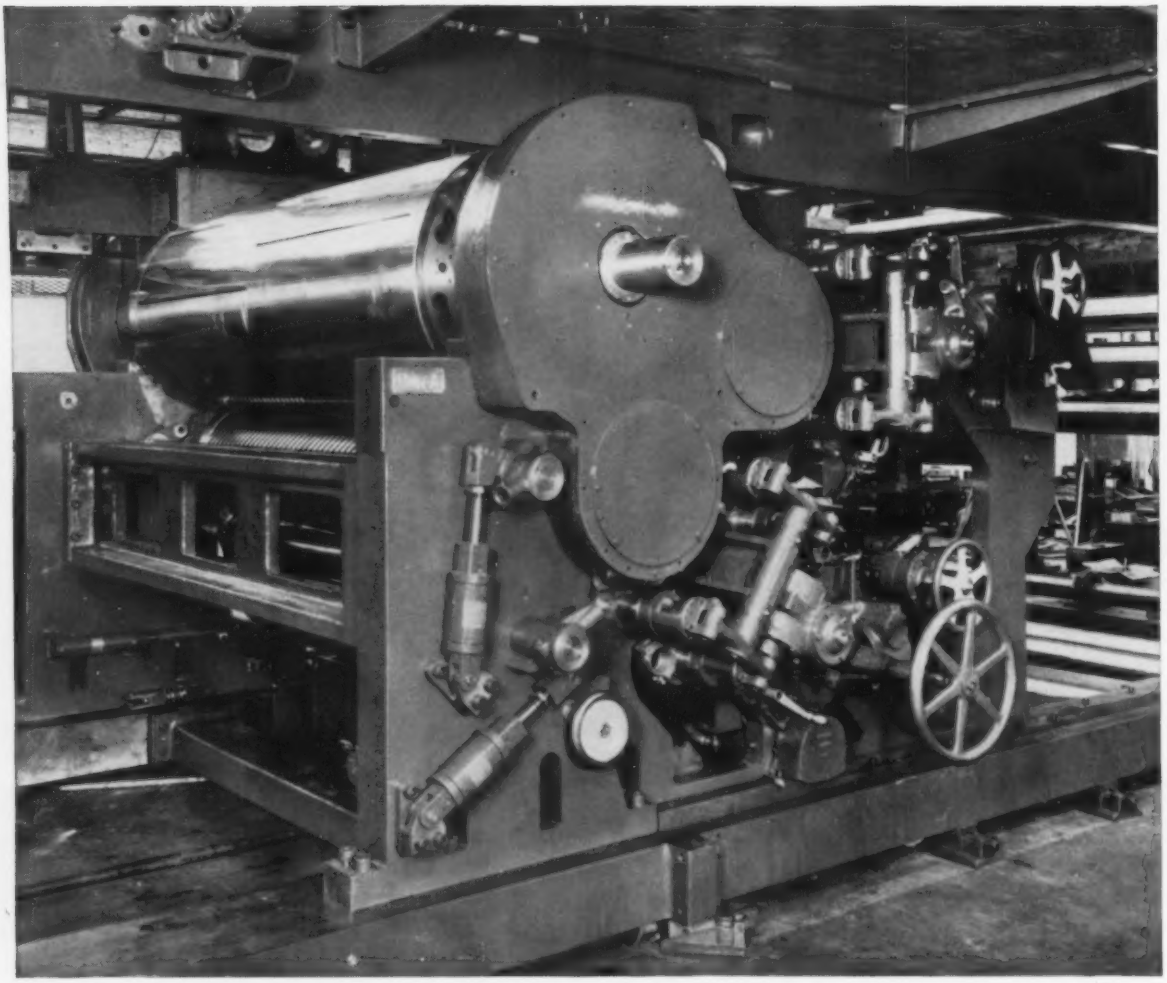

New Babcock magazine press uses a ductile iron impression cylinder 50" diameter, 83" long. United Engineering & Foundry Company, Canton, Ohio, supplied this ductile iron casting to Babcock.

How to get castability, machinability plus strength and toughness

See the gleaming impression cylinder in the upper left section of the press? It's ductile iron.

There are six cored holes that run longitudinally close to the surface of the ductile iron cylinder that were cast within a location tolerance of $\pm 1/8$ inch!

The relative ease of producing such a casting was one of the reasons why the manufacturer selected ductile iron in preference to steel. While steel offered the required strength properties, the greater difficulty in maintaining the close dimensional control made it unattractive for this job.

And, because ductile iron combined the necessary castability and machinability with high strength and high modulus of elasticity, it was the manufacturer's natural choice over gray cast iron, too.

What about your applications? Can they use the processing and product advantages offered by ductile iron? Six types of ductile iron are available. One should suit your particular application. Tensile strengths range from 60,000 psi to 150,000 psi, with elongation ranging from 5% to more than 20%. Why not get complete information? Request your copy of "Ductile Iron Digest." Write:

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ductile iron... for high strength and toughness in iron castings.

PROFIT CHECK: Authors Randle, left, and Swinyard check figures in their study of metalworking profits.

Planning for Improved Profits

For many companies, the key to business survival depends on more active profit planning. Proof of this is metalworking's steadily declining profit rate. While the industry's sales volume last year doubled that of 1950, profit margins dropped one third.

Profit planning has many meanings. Here it is considered as an organized effort, made within an existing company framework, to increase profits within a specified time.

This special report, prepared by the Management Research Dept. of Booz, Allen & Hamilton, covers the three major aspects of profit planning.

The first part traces the decline in metalworking's profit margins. The second points out the causes for the decline. The third deals with current business approaches to profit improvement.

ABOUT THE AUTHORS: C. Wilson Randle is Partner in Charge of Management Research and Alfred W. Swinyard, Director of Management Research for the management consulting firm of Booz, Allen & Hamilton, Chicago. Both men have strong backgrounds in economics, marketing and business management.

Why Better Planning Is a Must

Profit margins for metalworking companies are trending steadily downhill.

From a high of 21 pct in 1950 pretax profits fell to 14 pct last year. Better profit planning is needed.

▪ The profit pattern of the last decade shows the critical need for metalworking companies to plan for profits on a broader, more systematic and continuing basis. For despite rising sales, the industry's profit margins have declined steadily.

In 1957, for example, metalworking sales were nearly one and a half times greater than the 1947-1949 average. This steady increase was only temporarily halted in 1954 (and again this year).

But since the 1950 high, as sales have doubled pretax profit margins (as a pct of total assets) have dropped one third. And while metalworking scored higher sales gains than other manufacturing industries, a sharper drop in profit margins was experienced.

Profit Erosion — Metalworking's pretax profits fell from a high of 21 pct in 1950 to 14 pct in 1957. And this year they are expected to drop even further. The crucial point is that management has relied on the rising sales volume of the post-war years to provide a profit cushion. A gradual increase in dollar profits has covered up constant erosion of profits relative to sales and the capital employed.

A look at the profit pattern for different metalworking groups shows further evidence of the need for better profit planning.

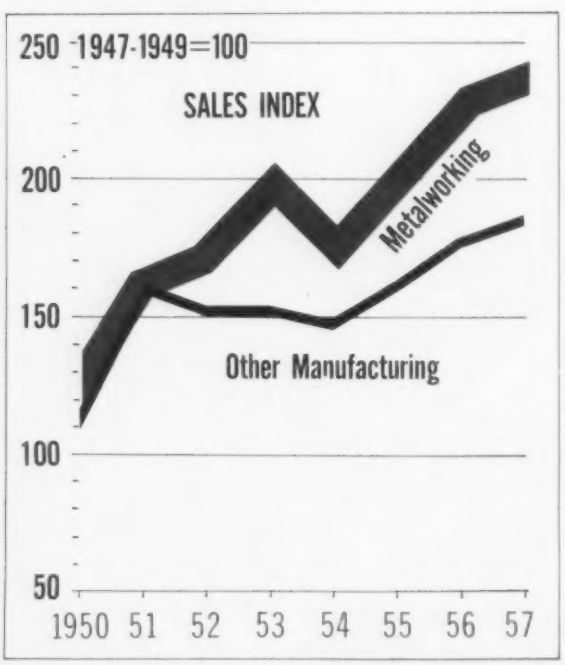
Post-War Highs — The post-war high for eight industry groups—iron and steel, nonferrous, machinery, electrical machinery, transportation equipment, motor vehicles and parts, fabricated metal and scientific instruments—was reached in either 1950 or 1951. Since then, despite higher sales there has been a steady decrease in profit ratios.

The single exception is transportation equipment. This industry was depressed shortly after World War II but has shown a three-fold sales gain since 1947-1949 and a slight increase in its profit rate. On the other hand, it has the lowest rate of return on assets.

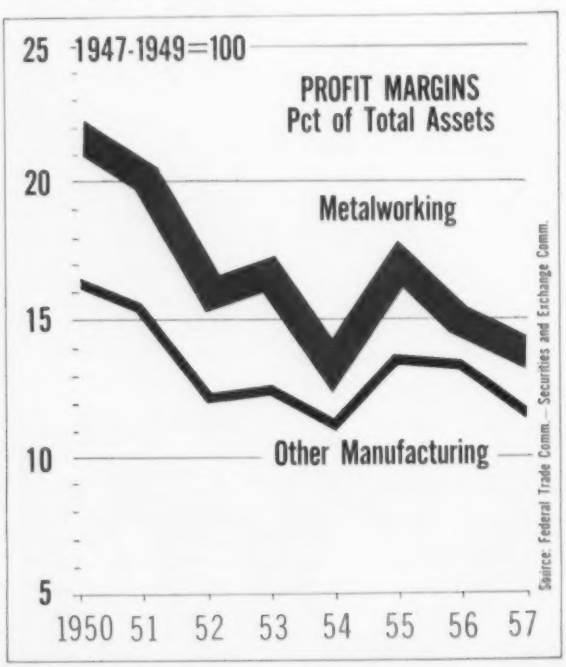
Since sales in the immediate future are not expected to increase as rapidly as in the past few years, management must pay greater attention to other methods of profit improvement.

Tracing Metalworking's Profit Decline

As Sales Increased . . .

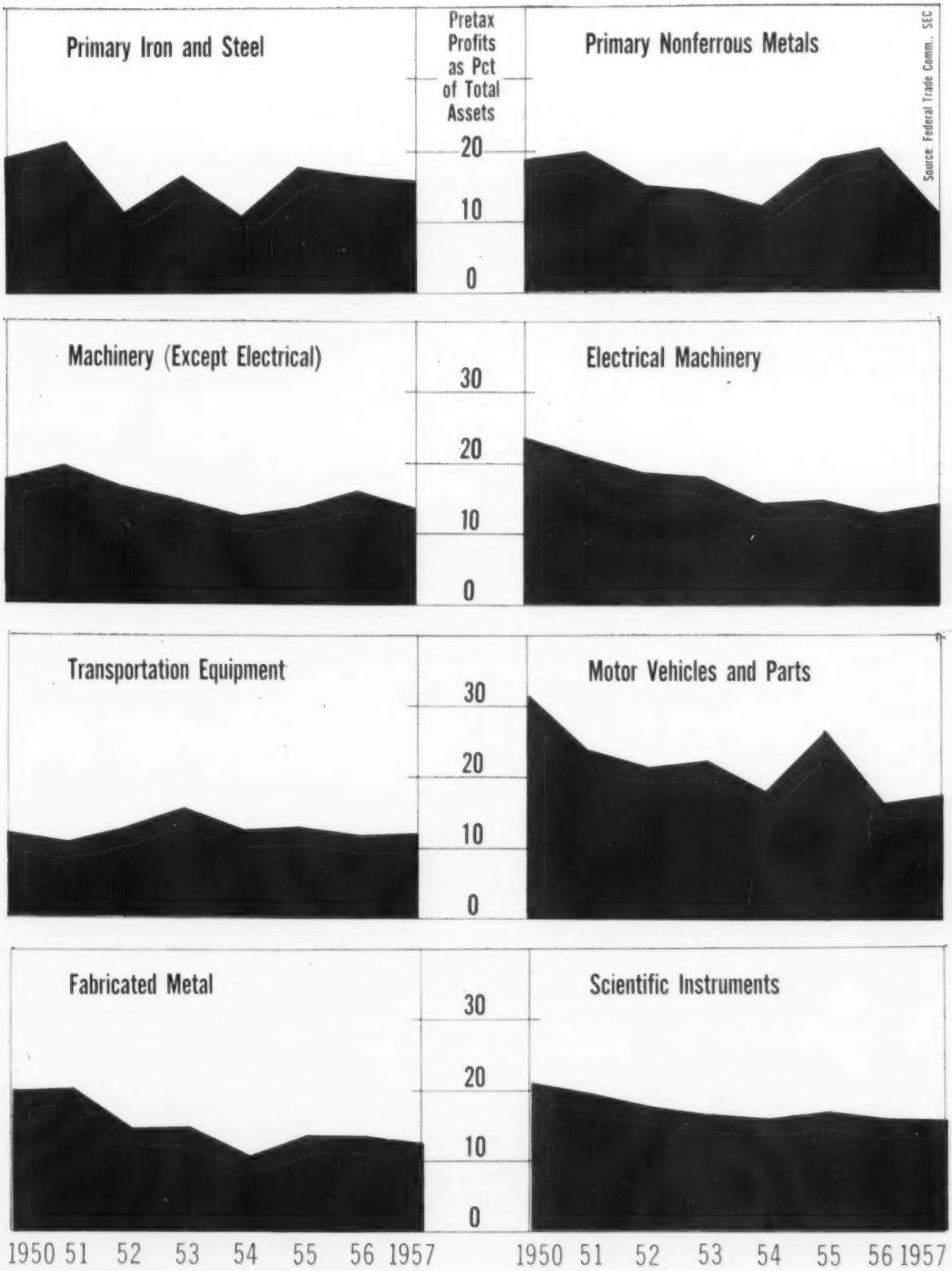


Profits Fell Off



Profit Patterns for Major Groups

The Overall Trend Is Down



Behind the Squeeze on Profits

Many pressures are working against higher profits. Some can be measured, others can't.

But knowing what they are and how much they can be controlled is the starting point for profit improvement.

▪ To plan effectively for profit improvement, management must understand and deal with the pressures which work against higher profit margins.

Many of these profit pressures cannot be measured accurately. For example, a high volume of defense production, with its low return has been diluting profits in many companies. In others, rigorous competition or out-of-pattern materials price increases have depreciated profits. Low-cost imports and shifts in consumer preferences have injured profits elsewhere.

Major Profit Pressures — But there are many pressures which can be measured and should be examined closely by profit-conscious companies. Most of the major influences causing the decline in profits can be accounted for by increases in direct and indirect labor costs, facilities costs and stiffer competition.

Direct Labor—One of the basic pressures on profits has been the constant upward movement of direct wages. Since 1947-1949, direct wages have gone up more than 50 pct while productivity has risen only 30 pct.

This gap reflects a strong pressure on profits. Industry is continuing to pay higher wages without offsetting increases in productivity. Profit slippage is the result. This is made even more serious by increases in fringe benefits which have added an additional 17 pct cost burden without compensating increases in productivity. There is no evidence that this trend is going to reverse itself in the immediate future.

These pressures, moreover, are somewhat uncontrollable in industries such as automobiles or steel. Here, long-term contracts have provided automatic increases based on cost of living and productivity improvements. These contracts have played an important role in creating profit pressures in metalworking.

Indirect Labor — The manufacturing areas of many businesses are today characterized by additional groups of overhead workers. The same — but more exaggerated— tendency is apparent in the office, clerical and administrative areas. Indirect workers have been increasing at a much faster rate than direct workers.

Furthermore, wages of indirect workers have also been going up.

The number of nonproduction workers has increased 49 pct in the past decade compared with a 3 pct increase in production workers. About the same situation is seen in all manufacturing as well as metalworking.

This trend could be expected. It reflects our improved technology, extended staff services, and greater emphasis on research and development. But it has many dangers, not the least being the inattention of management, and can rather easily get out of hand. Even now it is exerting severe profit pressures in many companies.

Facilities Cost — Productivity growth has been the hallmark of American industry. To this end, management has steadily increased investment in plants, property and equipment.

During 1947-1949 the average net value of metalworking plant, property and equipment per production worker was $2,114. Since then it has increased almost three times to $5,945 per worker last year.

But along with this growth there has been a similar increase in depreciation burden. Since depreciation is understated (because tax laws require depreciation on the basis of original—not replacement —costs), profit and loss statements do not adequately reflect the total pressure on profits.

It is clear, however, that larger investment in plant and equipment together with increased depreciation cost have been a profit depressing influence.

Productive Capacity — Growing production capacity and improved technology have been major factors in creating greater competition and a resulting pressure on profits.

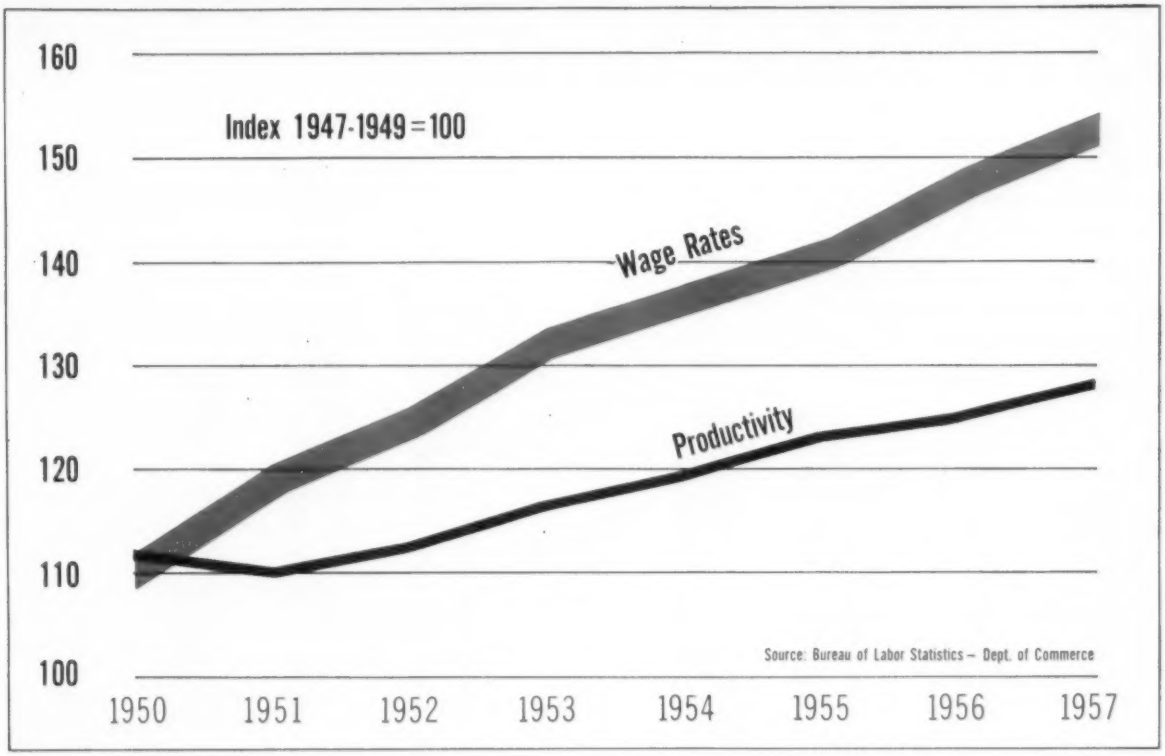
In 1951, production capacity for four basic metals (pig iron, steel ingots, primary aluminum and refined copper) measured against their average output during 1947-1949 was at an index of 125. Since output (measured against the same index) was at 122, the situation was pretty well balanced.

But by January 1955, capacity had increased to 154 and output was at 127. Three years later in January, 1958, capacity reached 173 and output 105. This output index dropped to 97 at the end of first quarter 1958. The critical pressure element can thus be seen.

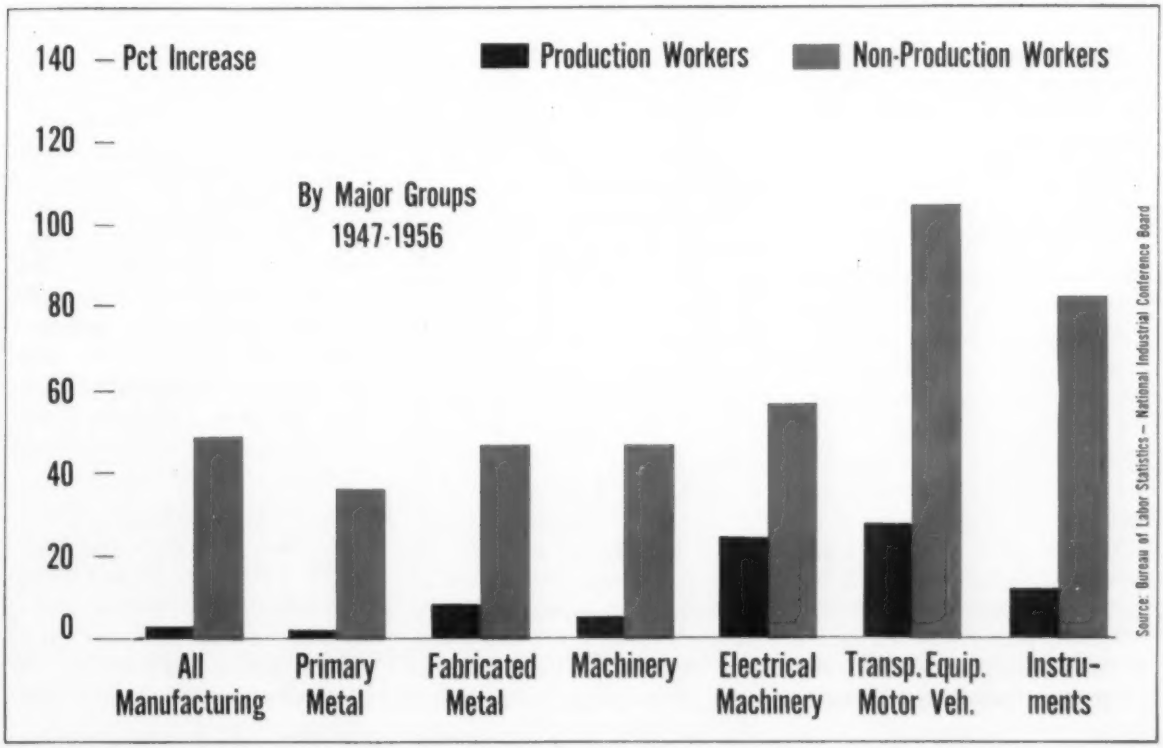
As the gap between capacity and production widens, the opportunity to pass on cost increases to the consumer is reduced. At the same time, industry moves closer and closer to its break-even point. This profit-depressing influence is now severe.

Other Pressures—Added to these basic cost factors, such items as materials, heat, power and transportation have more than doubled in the past ten years. Interest costs have also doubled. Rates for short-term business loans, for example, rose from 2.1 pct in 1947 to 4.6 pct in 1957.

Wage Gains Outstrip Productivity



Indirect Labor Grows At Faster Rate



Which Route to Higher Profits?

Right Now Cost Reduction Looks Best

Four major approaches to profit improvement are now used by most companies.

The one to choose depends upon individual company and industry circumstances. Presently, cost controls offer most promise.

▪ Any profit improvement plan must stem from the overall objectives of the company. So, the first step in planning for higher profit margins calls for the setting up of company goals. These ordinarily embrace short and long-term growth plans, profit targets and fields of primary interest.

After setting these objectives, profit improvement plans for the company can be then evolved. As a minimum, they should include an appraisal of the various profit alternatives open to the company. Four approaches now considered by most companies include: higher sales volume; increased selling prices; new products and reduced costs.

Each method is a potential source of higher profits. A close look at all four is a must in formulating plans for profit improvement.

Higher Sales—Rising costs and higher break-even points make the maintenance of a high sales volume essential. In the long run, this route to profits seems both possible and feasible.

Forecasts of gross national product, population and new family formations all support this view. In the short run, however, the opportunities for immediate sales increases do not seem as bright.

Nevertheless, some companies are finding ways to increase sales against the basic business trend. Redirection of marketing effort based on a careful analysis of customer potentials and market coverage for major products is achieving outstanding results for some companies.

This method calls for a systematic search and identification of competitive soft spots. One medium-sized metal fabricating company just reported its best first quarter in the last four years, as a result of redirecting its sales effort against the market potential for particular products.

Of course, opportunities do exist for individual companies to gain immediate sales increases and to concentrate on higher profit products. Management must not neglect them. But the opportunity to increase profits by using other approaches seems brighter.

Price Increases — The second obvious avenue for improving profits lies in raising prices. But on an industry-wide basis the economic environment for this approach is not favorable. Current excess capacity has caused a "buyer's market", making it more difficult to pass on cost increases.

Those industries which require relatively large capital investment, have more freedom in pricing decisions and are seriously considering this course of action. Even here, however, discretionary price adjustments are becoming more difficult. The recent attitude of steel companies reflects this circumstance.

Individual companies should review their pricing policies in light of present costs, possible market reaction and competition. Selective price adjustments may well contribute additional profits in individual cases. Price adjustments last year by several major agricultural implement manufacturers undoubtedly helped soften their profit decline.

New Products—The third avenue of profit planning lies in the area of new and improved products. It is almost axiomatic that the current recession is not in new products. Here business is good and profit margins long. The older product lines are the profit depressants.

In many respects metalworking is taking the lead in capitalizing on this profit improvement technique. The current new product activity of major metalworking companies covers a broad horizon—from an agricultural implement manufacturer expanding into outboard motors to a copper producer expanding into aluminum.

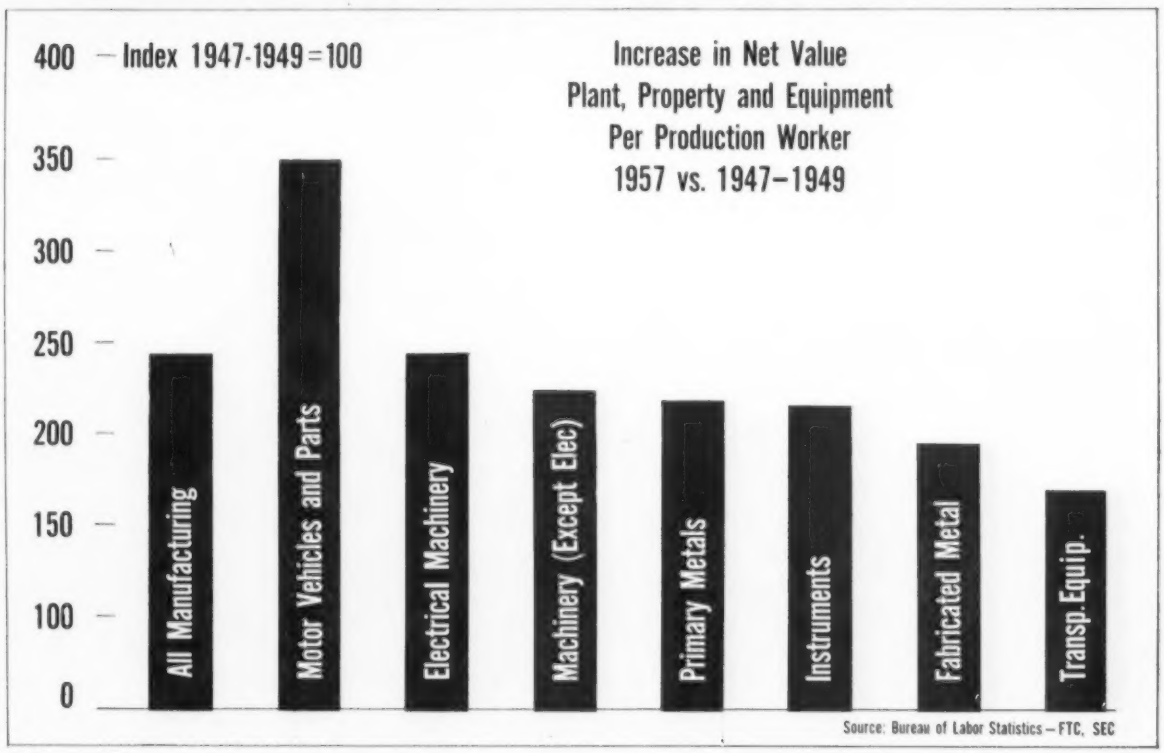
The introduction of new products, properly keyed to the market, makes three important contributions to profit improvement.

First, new products stimulate greater sales volume. To this end the metalworking industry is oriented to new product development. The three industries spending the greatest amounts on research and development—as a percent of sales—are in metalworking

These industries also lead metalworking in terms of increased sales volume since 1947-1949. This may not be a cause and effect relationship, but it is evident that new products are an important means of boosting sales volume.

Steady Flow—Second, and just as important as higher sales, is the larger profit margins possible on new products. Most successful profit improvement plans are those based upon a continuing flow of new products which sustain profit margins.

How Investment Per Worker Has Increased



Finally, new products are a source of stimulation to all areas of the business. A high degree of creative effort and cooperation is required to launch new products successfully.

New product activity calls for an integrated effort with every major area of the company represented. It creates a more cooperative spirit and redounds to the benefit of the company in tackling its many other problems, including profit improvement.

Most companies recognize that it takes time to develop new products from the initial research and development stage to final market pay-off. For the majority it takes over three years. Only those companies with new products programs now well underway are likely to obtain increased profits from this source in time to meet the 1958 profit squeeze.

Lower Costs — The fourth and the most direct way to profit improvement is through planned cost reduction and control.

For most companies today, the potential profit payout from management effort devoted to cost reduction is highly promising.

Actual cost savings show up at the bottom of the operating statement as a direct increase in pretax profits. Higher sales, however, are subject to the normal expenses which go along with volume increases.

Only in limited circumstances can companies increase sales, raise prices or introduce new products and get fast results. By contrast, all can secure improved profits quickly through cost reduction and control.

Basic Concepts—The following concepts are basic to any cost reduction program:

1. Cost reduction should be keyed to company objectives and integrated with other profit planning activity. Consideration must be given to the various areas of profit improvement available to the company which meet the goals established.

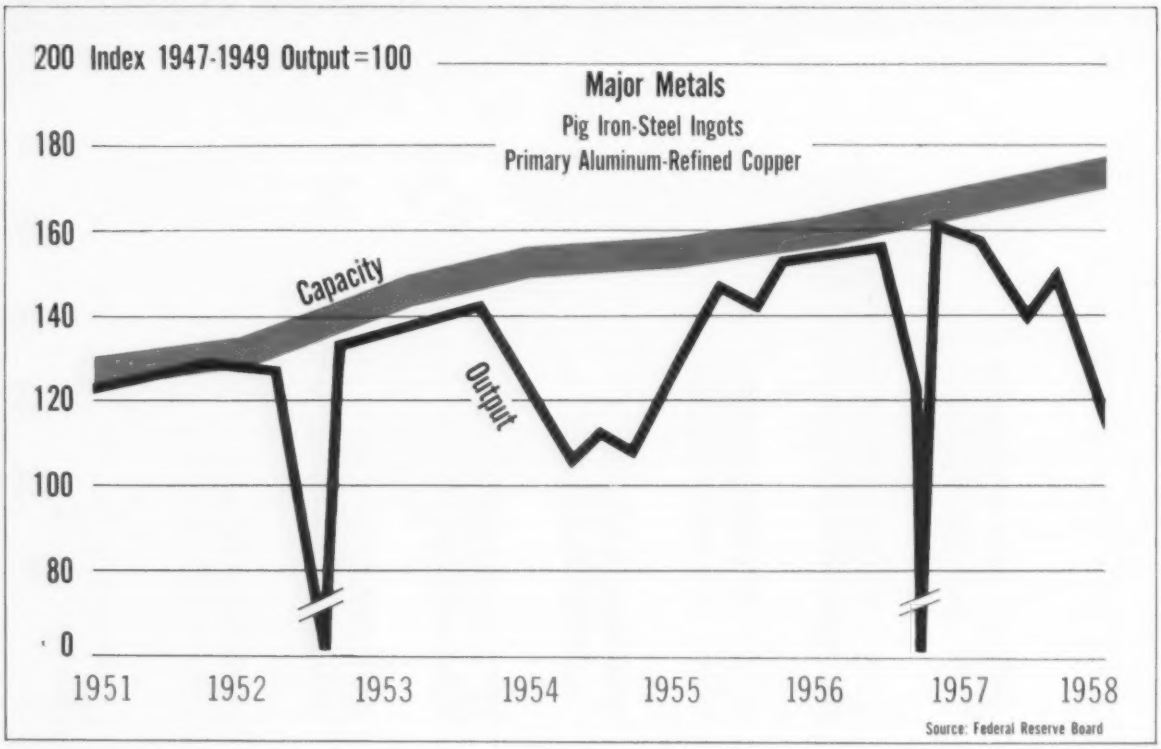
2. Cost reduction is part of the everyday job of management. There is an opportunity and obligation to reduce costs in every function of management and at every level—from foreman to president.

3. Cost reduction should be applied to all areas of the company. Manufacturing is not the only area where cost reduction pays. Every area of the company should apply cost-cutting techniques.

4. Cost reduction can be "crash" and/or long term in nature. The situation within the company determines the type of cost action. Needs may dictate quick decisive action to meet an emergency or a long-term program carefully phased out.

5. Cost reduction must be sus-

Gap Widens Between Capacity and Output



tained through cost control. Lack of emphasis on continuing cost controls, can negate the finest planning by permitting the gradual return of costs to earlier levels.

These concepts form the basis for any effective cost-cutting program. But getting a cost reduction program off the ground calls for the following steps:

1. Set Objectives — Preliminary cost reduction goals should be set for each area of the business. These will provide a rough measure of potential improvement and serve as standards for judging progress.

2. Organize—The cost program can be headed by the chief executive of the company, by a person specially selected for the task or by an operating or coordinating committee. The approach used depends on the nature of the program and the problems likely to crop up.

Whatever the organization, two basic necessities prevail. There must be a clear cut establishment of authority and responsibility; and the program must have the support of top management.

3. Plan Action — This step has the highest skill requirement. Extreme care must be used to determine where and how large are the opportunities for cost reduction. Then, and only then, can you carry out a purposeful cost action.

4. Reduce Costs—Cutting costs involves more than issuing orders. Technical and human problems must be identified and overcome. Lack of training, understanding and courage are constant roadblocks.

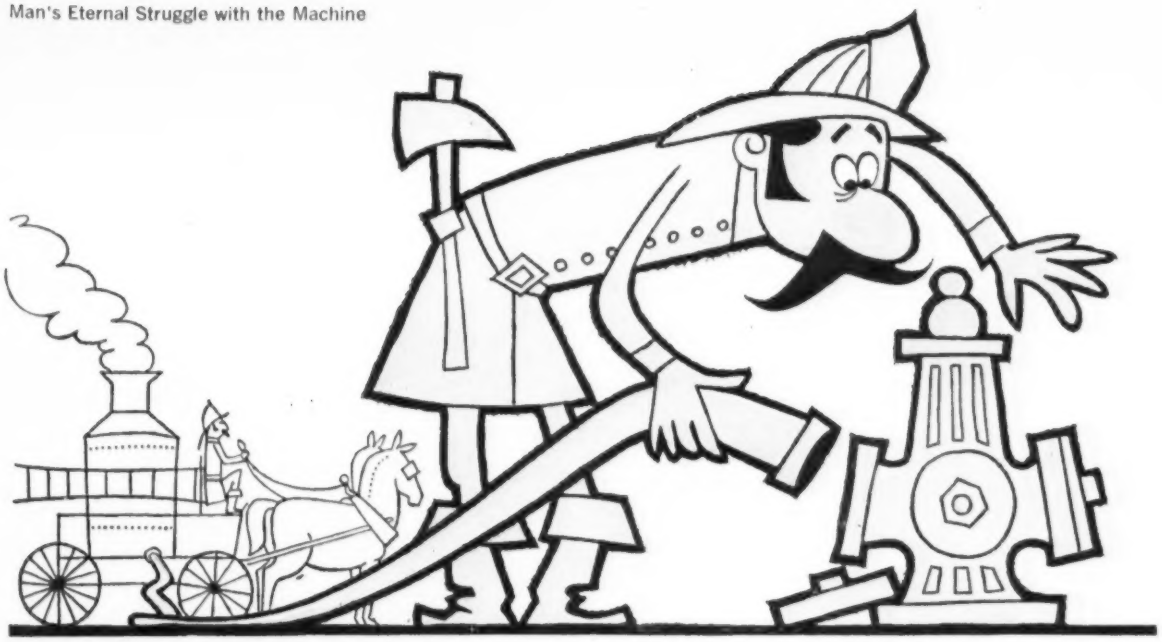
5. Check Progress—Cost reduction plans must be appraised periodically to keep the program on schedule and determine weak spots in cost-reduction targets, methods or the attitude and cooperation of those charged with carrying out the program. The results of this appraisal should be used for prompt corrective action and feed-back improvement.

6. Install Controls — Cost control plans should be developed before actual cost reductions are made. They can be adapted to a changing situation. But there can be no lasting cost reduction without effective cost controls.

Alert managements have accepted the challenge of declining profits. They realize that careful analysis will disclose various methods for improving profits. They also know that it may mean the difference between profit or loss, and in the long run, determine their company's survival.

Reprints of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., The IRON AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.

Man's Eternal Struggle with the Machine



AS PROFITS SHRINK AND COSTS CONTINUE TO GO UP, MORE THAN JUST "THE VENDOR'S QUOTATION" IS NEEDED!

Certainly you have to depend on your vendors . . . but how much?

The answer is "completely"! Your job is tough enough without your having to be a machine design or materials handling expert, too.

When you're specifying equipment, you should *only* have to provide an objective explanation of the problem, as well as the understanding of the product and related processes.

The vendor is the expert who's supposed to analyze that problem, then design and supply the necessary equipment. And the equipment should be ready to do your job when it's installed, too. Your overhead can't afford the lost production time and expense while you test and prove the vendor's equipment for him. After all, your original specifications called for equipment *to do a particular job.*

Sciaky has always accepted the vendor's full responsibility for design, manufacture and *delivery into production* according to the original specifications. That's why Sciaky resistance welding and production equipment satisfies the requirements of *your* particular job. That's why Sciaky operates the only independent, fully staffed and equipped Research Center devoted to advancing the application of resistance welding processes.

Why take less than the full advantage of consulting with a Sciaky Application Engineer the next time you are considering equipment. No obligation, of course.

The manufacturers of automobile wheels took that advantage. As a result those wheels are now assembled with automatic resistance welding that includes four other operations—not only assembled better, but faster and at lower cost. Write for the details of this unusual high production application that satisfies the most rigid specifications for weld quality.

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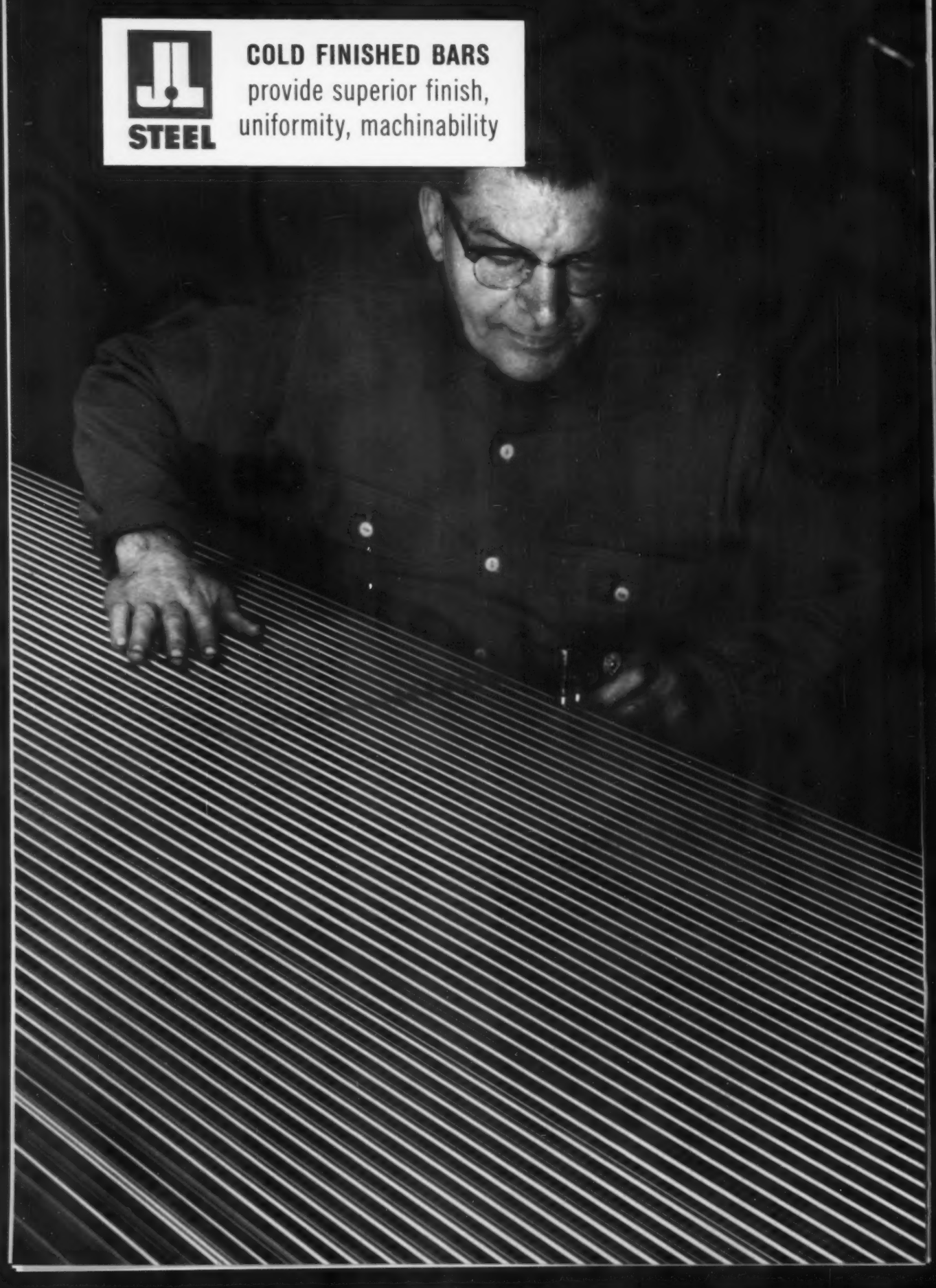
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COLD FINISHED BARS
provide superior finish,
uniformity, machinability

"J&L B-1113 leaded steel provides flawless finish, speeds machining of Singer sewing machine parts 35%"

"Flawless finish of 'Slant-O-Matic' hook assembly components machined from J&L B-1113 leaded steels, and carefully polished, prevents thread snags," according to officials of Singer Manufacturing Company.

With the "Slant-O-Matic" hook assembly moving at 3200 revolutions a minute, the slightest burr or tool mark on any part would snag the thread. Singer officials report the machined surfaces with J&L steel are "definitely easier to polish." They are now using leaded steel in over 100 components on the scores of industrial and household machines they manufacture.

"Use of cold finished leaded steel bars also speeds production 35% on our multiple spindle screw machines. And we get 25% longer tool life," Singer officials report.

Similar machining qualities and speed are possible in your operations with J&L controlled quality cold finished steel bars. A J&L steel specialist can recommend exactly the right steel for any job from J&L's complete cold finished line. Chances are he can help you get improved finishes, higher cutting speeds and longer tool life.

Call your local distributor, or write to Jones & Laughlin Steel Corporation, Dept. 543, 3 Gateway Center, Pittsburgh 30, Pennsylvania.

J&L's B-1113 leaded steel permits 35% higher machining speeds in this multiple spindle screw machine operation at Singer Manufacturing Co., Elizabethport, N. J.

Superior surface finish of these hook assembly components prevents thread snags on Singer's "Slant-O-Matic" machines. Parts are machined from J&L leaded steel bars.

Jones & Laughlin Steel Corporation

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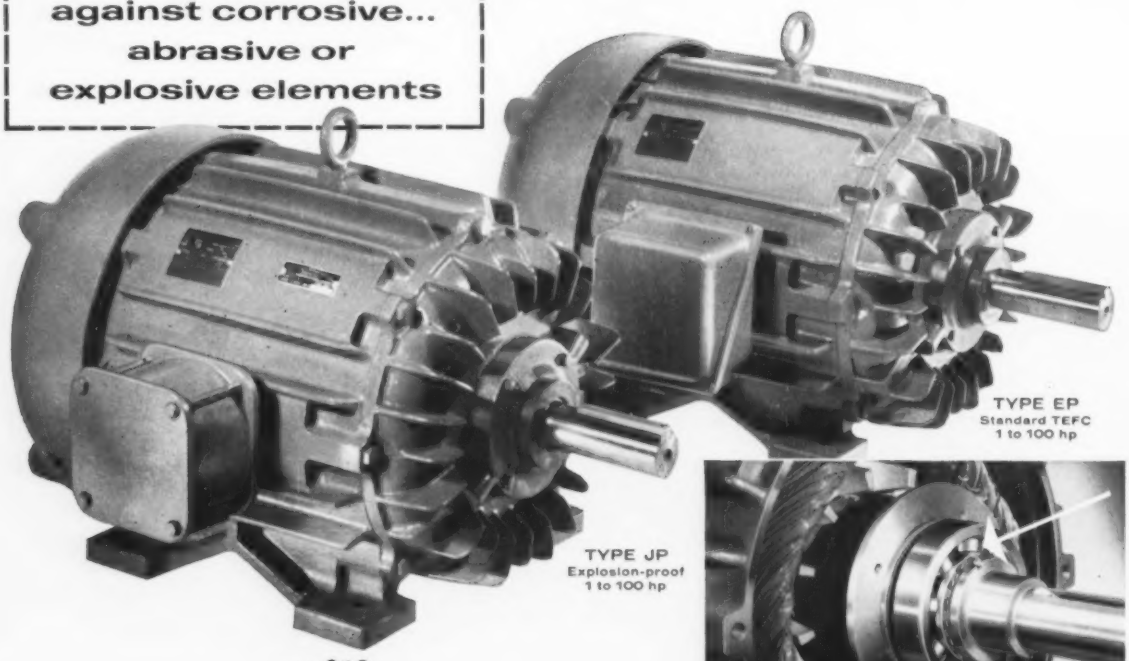
YOU GET
EXTRA PROTECTION
against corrosive...
abrasive or
explosive elements



TYPE EP
Standard TEFC
1 to 100 hp

TYPE JP
Explosion-proof
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Wagner totally enclosed motors...protected for longer motor life

If you need motors that will keep production rates up . . . that will give the continuity of service that is so important to automation . . . that will operate with complete dependability under the most severe conditions—Wagner totally-enclosed motors are your soundest choice.

Type EP Motors offer protection against corrosion, dust, abrasives, fumes, steel chips or filings. Type JP is explosion proof as well—designed and approved for use in explosive atmospheres.

NEW NEMA FRAMES . . . These motors are built in the new NEMA Frame sizes from 182 through 445U, with ribs that add mechanical strength and increase the surface cooling area. Effective cooling system adds to motor life. Let your Wagner Sales Engineer show you how these protected motors can bring you savings on initial motor costs, maintenance costs and continuity of operation.

1 TO 100 HP—4 POLE, 60 CYCLE—
NEMA FRAMES 182 THROUGH 445U

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WM58-5

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HEAVY DUTY BALL BEARINGS . . . The ball bearings used in these motors are of the highest quality, with more than ample capacity to provide long troublefree service under heavy loads.

BEARINGS CAN BE RELUBRICATED . . . Factory installation will last for many years under normal service, but openings are provided to permit relubrication that adds years to motor life under severe conditions.

SEALS KEEP BEARINGS CLEAN . . . Both ends of these motors have running shaft seals to keep the bearings clean. Bearing housings are effectively sealed to prevent escape of grease.

Bliss mills roll brass within a Norwegian mountain

Some 120 kilometers north of Oslo, buried deep underground in the side of a mountain, is Raufoss Ammunisjonsfabrikker, Norway's state-owned, privately operated consumer goods and munitions producing company, a prime supplier to the NATO nations and an important cog in the defense of the West.

Helping Raufoss play this major role are two Bliss-built rolling mills—a 30" x 52" two-high hot reversing mill used for rolling aluminum, brass and mild steel up to a meter wide (39.37"), and a 16" and 34" x 34" cold reducing mill for rolling brass up to 30" wide. These mills, helping to turn out the weapons of defense, are also used by Raufoss to produce the strip it uses to stamp out a wide variety of components for industry's everyday needs.

This installation is just one more example of the acceptance of Bliss rolling mill equipment, both in the U. S. and abroad. Learn how Bliss has engineered other installations—ferrous and non-ferrous. Simply write for a copy of our 84-page Rolling Mill Brochure, Catalog 40-B.

This 16" and 34" x 34" cold combination rundown and finishing mill can roll material up to 30" wide.

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E. W. BLISS COMPANY, Rolling Mill Division, Salem, Ohio

Subsidiary: The Matteson Equipment Company, Inc., Poland, Ohio

Automakers Face 10-Year Low

Second Half Sales Will Tell the Story

Many uncertainties loom for automakers in the remaining months of 1958.

Among them are steel and labor costs. But most important is customers.—By H. R. Neal.

▪ Signs are building up: Production of passenger cars in the U. S. in 1958 might well be the poorest crop harvested by automakers in the past 10 years.

First-half output of 2,242,039 units was 34 pct less than the 3,370,932 cars built in the same 1957 period.

American Motors Corp. was the only U. S. automaker to boost first-half production over the same year ago period. AMC output of its three series of Ramblers was 66 pct greater than the combined production of Rambler, Nash and Hudson passenger cars in the 1957 period. AMC's six months figures: 1958—92,812; 1957—55,537.

Others Hard Hit—Chrysler Corp. output tumbled more than any other automaker—56 pct, as assemblies of Plymouth, Dodge, DeSoto, Chrysler and Imperial automobiles fell to 316,257, units from 721,082 for the same six months of 1957.

Ford, Mercury, Edsel and Lincoln production declined 42 pct from a year ago, lowering Ford Motor Co. output to 591,014 passenger cars. A year ago the figure was 1,015,310 units. Edsel output for the period was 6944 units, lowest total for any car except Packard.

Cuts Were Sharp—GM's production reduction for the first six months of 1958 was 21 pct as Chevrolet, Pontiac, Buick, Oldsmobile and Cadillac all showed cuts in output. Comparative figures for GM: 1958 — 1,222,208; 1957—1,543,323.

Studebaker - Packard production was off 44 pct from a year ago as assemblies declined to 19,748 units from 35,689. Packard production accounted for 1546 units compared with 4573 a year ago.

Uncertainty Looms — First-half output was the lowest production since 1952 when the industry turned out 2,195,285 passenger cars. To find a lower first half than 1952 you have to go back to 1948 and the post-WWII build-up period when the industry produced 1,723,482 vehicles.

Despite low first-half production totals, even fewer cars are expected to be built in the second half of the year. Unless there is a sharp increase in new-car buyer interest, auto output in the remaining six months of the year is expected to be held down to about two million units.

Change in Tactics—Currently many automakers are in the process of winding up production of 1958 models. Trade sources estimate output for the third quarter will total only 750,000 units.

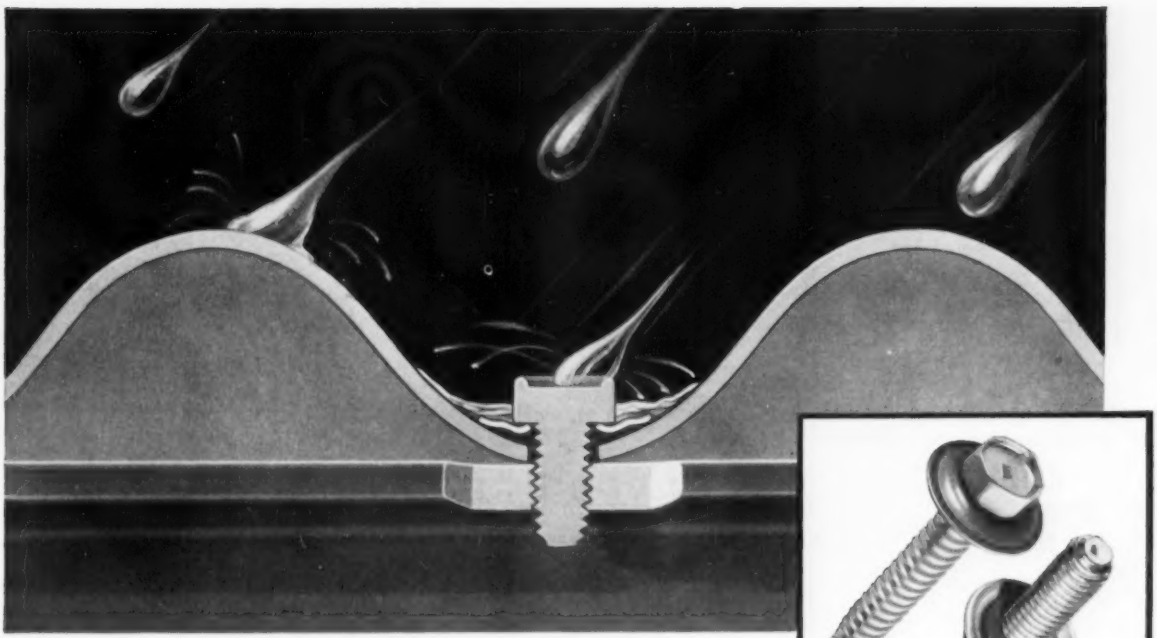
At the same time, the industry has indicated it will back down from its race horse tactics of recent years when manufacturers sought to reach production peaks as soon as possible. Material and parts suppliers say automakers plan to produce about 1,250,000 passenger cars in the last quarter this year. Maximum weekly production will be around 120,000 units, suppliers estimate. This compares with a top figure over 150,000 for one week during 1957's fourth quarter.

Steel Price Question—Automakers feel they have good reasons for taking a conservative approach in planning for the last half of the year. They are still looking for answers

1958: Lowest in 10 Years?

Year	Auto Production
1948	3,910,700
1949	5,128,187
1950	6,674,933
1951	5,338,820
1952	4,337,481
1953	6,134,534
1954	5,509,550
1955	7,942,132
1956	5,801,864
1957	6,115,458

Source: Ward's Reports.



NEW SPIN-SEAL* SCREWS GIVE

leakproof fastening

in products . . . in construction

THESE NEW, leakproof fasteners combine a special washer† and built-in sealant with standard machine, cap, or tapping screws.

Three-way seal – Tightening the RB&W "SPIN-SEAL" screw forces the flow-in sealant into spaces around the (1) head, (2) threads and (3) clearance hole, hermetically sealing the opening. The concave, springy washer confines and controls the flow of the sealant and provides an *additional* spring tension seal. Even on corrugated surfaces, the washer conforms to the curve of either crown or valley.

Permanent gasket – Compound is plastic, rather than elastic. Stable and non-aging, it won't split or ozone-check under pressure, is unaffected by industrial atmospheres, resists water, acids, also oil.

Won't gouge finish – Since the washer does not turn with the screw, finished surfaces are not damaged during installation. Nor is there any twisting or damage to sealant.

Standard styles – "SPIN-SEAL" fasteners are available in all standard screw styles except flat head.

Send for new bulletin SS-1A. It gives full information on "SPIN-SEAL" fasteners. Russell, Burdsall & Ward Bolt and Nut Co.

*Trade Mark †U. S. & Can. Pats. Pend.

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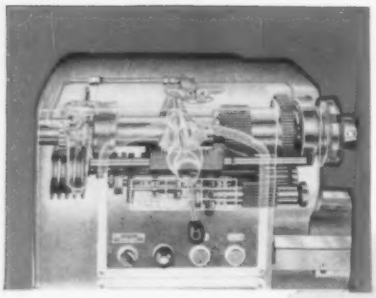
114th year

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver; Fargo. **Distributors from coast to coast.**

Note how sealant fills space under washer and flows into clearance hole and around threads of RB&W "SPIN-SEAL" Screw.



Full 5 HP—all spur gears—anti-friction bearings—automatic filtered lubrication—9 spindle speeds to 3000 RPM.

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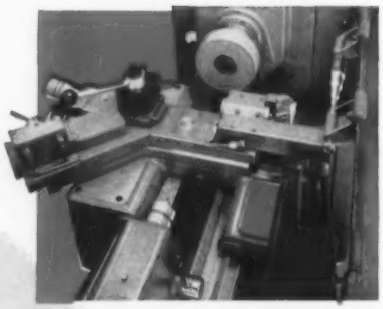
lathe features at low cost!



Compact, efficient 45° tracing mechanism—trouble-free, exclusive Lodge & Shipley design.

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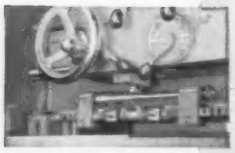
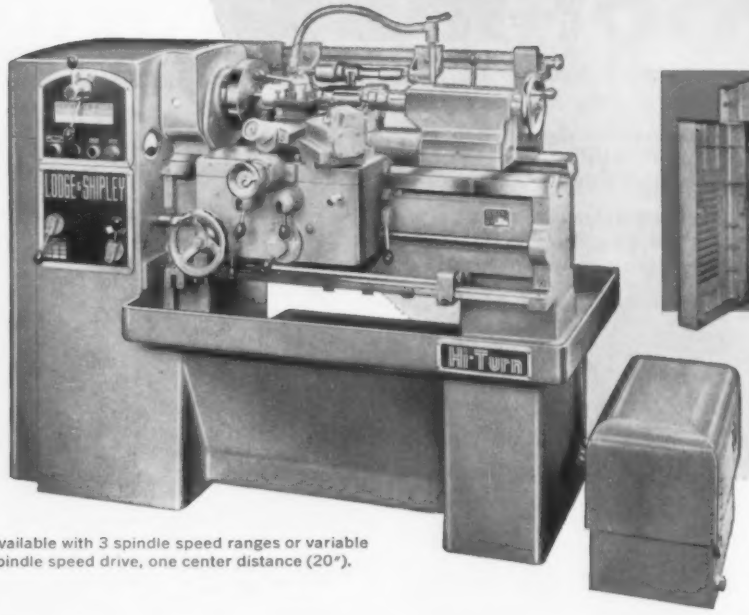


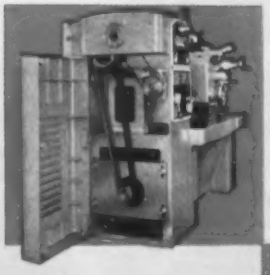
Template-type multiple length stops for duplicating shoulder lengths.

Hi-Turn COPYMATIC

TRACER LATHE for less than $10,000?



Available with 3 spindle speed ranges or variable spindle speed drive, one center distance (20").



Easily accessible and adjustable drive with Dinabrake motor.

Simple set-up for contour facing operations.

The **HI-TURN 45° COPYMATIC Tracer Lathe** is extremely rugged, built to do production jobs at time and money-saving rates. You get Lodge & Shipley quality features at a price substantially below many lathes having less horsepower and light construction. If you perform manufacturing or tracer lathe operations, put them on a lathe built to do the job at lowest cost. The features shown here are but a few of many . . . for complete details, request Bulletin DM-4 from:

The Lodge & Shipley Co., 3073 Colerain Ave., Cincinnati 25, Ohio

Automotive Production

WEEK ENDING	CARS	TRUCKS
July 12, 1958	73,846	15,275
July 5, 1958	35,273	7,742
July 13, 1957	111,943	22,610
July 6, 1957	73,682	14,051
TO DATE 1958	2,342,400	467,000
TO DATE 1957	3,556,600	616,600

*Preliminary Source: Ward's Reports

to several important problems—each involving "when and how much".

Failure of the steel industry to raise prices on July 1, while welcome, hasn't helped automakers in their planning. An increase in the cost of steel is considered inevitable but they would like to know when it is coming and how much it will be. But this problem is actually the least of their worries.

And What About Labor?—Far more important as a problem than the cost of material is the cost of labor. For seven weeks now, the auto industry has operated its plants without a contract with employees.

A contract with the UAW is inevitable—but again, "when and how much." The union is making good its threat to "rock and roll" through the summer. The longer negotiations drag on, time for new model changeover and production grows shorter; the union position, with threat of a strike, grows stronger while the industry's stand grows weaker.

Finally, the Buyer—But the most uncertain of the factors to be considered is the customer. And it is customers—or lack of them, who decide the prospects and production schedules for the auto industry.

What will the people think of the new cars that the auto industry will offer them? On the basis of this year's experience, auto companies prefer to wait for a response rather than anticipate one.

One hopeful sign exists. It isn't much, but as one automotive executive commented: "It's an improvement." According to Automotive News, stocks of new cars held by dealers or in transit were the lowest on June 1 than they had been on that date in three years.

On the Fence—The industry had an inventory of 728,864 cars, about 60,000 units fewer than on May 1. But stocks must be cut by 400,000 to 450,000 units by October 1, if the industry is to avoid a carry-over problem. In June 1957 some 787,749 units were counted in inventories, an increase of 50,000 over the previous month.

With a little bit of luck between now and the end of the year the auto industry will come close to 1952's total output of 4,337,481; without it, the industry could be just as close to the 1948 total of 3,910,700 passenger cars.

Price Tags Coming

Automobile manufacturers will be required to display a suggested retail price on their new lines of cars and station wagons.

A law newly enacted orders that the price labelling take effect next Oct. 1, or when a manufacturer introduces a new model, whichever is later. Autos leaving the factories must bear a sticker giving price data prescribed as aids to the original buyers of the cars.

Shown on the producers' sticker will be the: Suggested retail price of the car; suggested prices of accessories; transportation charges; make, model, and serial number; final assembly point; and the means of transportation to the dealer.

Demand for Optional Equipment Rises

American automobile buyers are as safety, comfort, and convenience conscious as they are about styling and performance, according to M. C. Patterson, Dodge general manager. A four-year study by Dodge reveals steadily rising demand for optional equipment and accessories.

Today, 96.5 pct of new Dodges are equipped with automatic transmissions. Power steering has increased to 62.7 pct of Dodge production, and power brakes to 35.3 pct of the total.

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The PROOF of DSC STEEL is in its PERFORMANCE ON YOUR JOB

DSC *AccuRolled*™ CR SHEET COILS

4 yr.-5 mo. **Job-Performance Record** on AP PARTS Exhaust and Tail Pipes

January '54 through May '58

Score 99.9% Plus

A WORD ABOUT THE AP PARTS CORP. — This long-time customer, with plants in Toledo, Ohio, Grand Haven, Michigan, and Culver City, California, is the world's largest manufacturer of mufflers and exhaust and tail pipes in the automotive replacement field. AP subsidiaries also supply these components to car factories for original equipment.

SOMETHING ABOUT "PIPES" — "Pipes" are everyday automotive necessities . . . an indispensable part of the exhaust system which insures efficient engine performance and motoring safety and pleasure. Thanks to the engineering, production and marketing skills of progressive manufacturers like The AP Parts Corp., "pipes are on tap" at moderate cost at car service centers everywhere.

"Pipes" are actually lengths of electrically welded steel tubing . . . specially sized and bent into complicated shapes to fit cramped clearances between body and frame of individual car makes and models. AP makes over 1,000 different pipes for the cars on the road today . . . plug or ring gauged to five-thousandths tolerance.

THE RECORD — Deliveries: initial shipments, January 1954; beginning March 1954, monthly without interruption. Cumulative weight: thousands of tons. Rejections during these 4 years and 5 months: a single coil in 1955; one in 1956. Here are the job-performance scores year by year:

1954.....	100.000%	1956.....	99.828%
1955.....	99.801%	1957.....	100.000%

1958 (latest report to 6/1) 100.000%

PART PLAYED BY DSC STEEL — DSC AccuRolled CR SHEET COILS provide the essential combination of uniform gauge and temper and consistent weldability for non-stop roll-forming, welding and shaping operations . . . as in "Pipe" fabrication. Add manufacturing "savvy" like AP's and the stage is set for high-scoring job-performance and low unit production costs . . . another example of customer-supplier teamwork "on the job."

Like to know how we do our part—whatever the DSC product may be? Just write to our G.S.O. or call a DSC Customer "Rep" . . . soon?

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Coke • Coal Chemicals • Pig Iron
Basic OH Steel Ingots • Blooms • Slabs • Billets • Rods
Hot Rolled and Cold Rolled Sheets • Low and Medium Carbon
Manufacturers' Wire • High Carbon Specialty Wire • Aluminum Cable Strand
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U. S. Pump Priming Takes Effect

Lag in Business Spending Now a Problem

Government spending is now having a stimulating effect on business in general.

But it will take heavier business outlays to bring on a real recovery.—By G. H. Baker.

▪ The stronger pulse of government spending is juicing up—as expected— the entire U. S. economy. Although spending by Washington accounts for only 15 cents of each U. S. spending dollar, the flow of government money into the nation's spending channels brings a stimulating effect.

The turnover of money is thereby accelerated at every level of business and industry. The result is not orthodox prosperity, but many businessmen and consumers think it is—and that's an important psychological factor in signing up customers.

Inflation Scare — The inflation that's coming is another reason for the recent pick-up in orders. All business executives are painfully aware that a lot of what has been labelled "good times" in recent years is basically only government-generated and government - controlled inflation. Prices rise, but costs rise just as fast—and often faster.

Customers are beginning to sense that another round of inflation is in the making. Goods bought today will certainly cost more before the end of this year. A firm price contract today will favor the buyer—not the seller.

Business Spending Down—Much of the decline in spending during the past year has been a falling-off in outlays for new plant and equipment. Spending by business has fallen off sharply in the present recession — much more so than spending by consumers or by government.

Actually, government spending is running ahead of pre-recession levels, and spending by consumers is at the same level as pre-recession. Only spending by business and industry is substantially below pre-recession.

Slow Pickup—As government officials see it, the coming pick-up in business is going to be very slow until capital goods spending shows some meaningful gains. Industrial activity will drag along—not much up or down—until after Labor Day. After that, a slow but steady gain in output should be apparent. Industrial production should rise by one or two points a month.

Consumer spending, according to the experts, will increase slowly, and by October 1 will be well above pre-recession. The year will close on a strong note, with all three major forms of spending (industrial, government, consumer) hitting a sturdy rate and with an encouraging volume of new orders on the books.

Although the recovery will be slow, most experts are confident of a complete revival by 1960, with a big boom in the early 60's.

Small Business Aid Still Alive

▪ Some kind of tax break for small manufacturers is still a good prospect, despite the Treasury's frowns on all plans tending to trim government revenue.

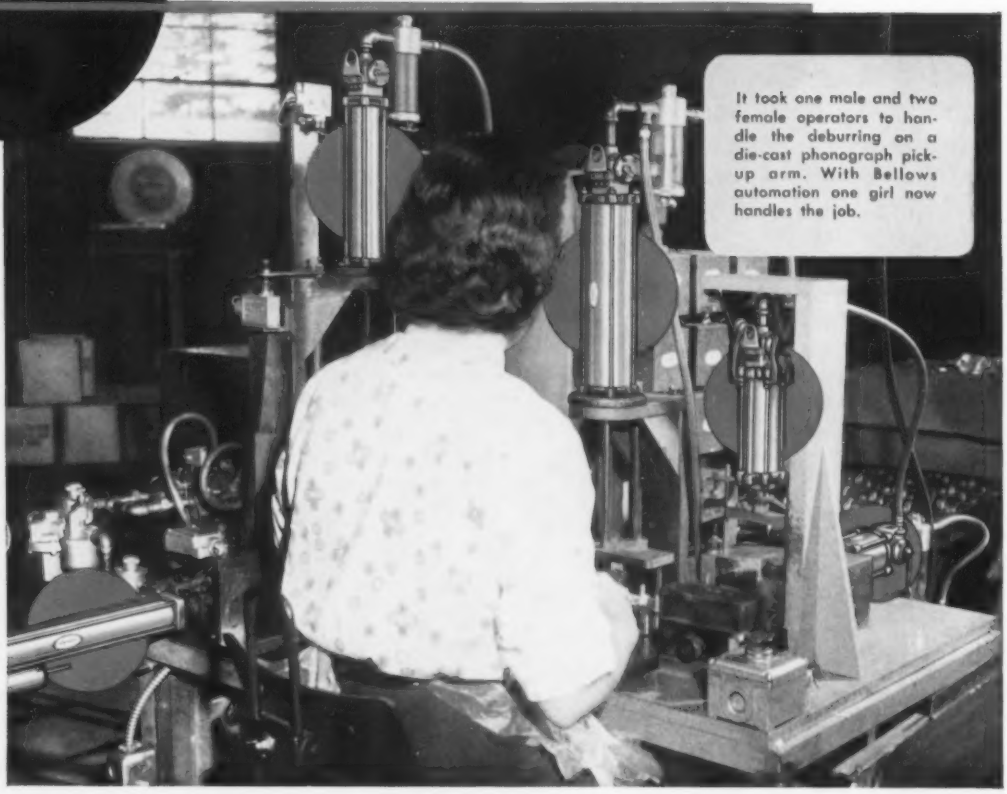
Shape and size of the tax break is a long way from final form. But there's a growing belief among members of the taxwriting House Ways and Means Committee that what's needed most these days is an improved tax incentive for smaller manufacturers and fabricators to modernize their machinery.

One plan, endorsed by both Democrats and Republicans on the Ways and Means Committee, would allow a tax credit to small firms on part of their spending for new equipment. The tax credit would be figured as a deduction in computing tax returns.

But some congressmen, as well as the Treasury, would require these tax credits to be paid to the government in later years through higher taxes. In this event, the tax "credit" actually would become nothing more than a government loan without interest.

Several other possible avenues leading to increased buying of plant and equipment also are under discussion. But these plans are far from jelled. The next few weeks will tell the story on whether or not relief is coming this year.

"SPOT" AUTOMATION"



It took one male and two female operators to handle the deburring on a die-cast phonograph pick-up arm. With Bellows automation one girl now handles the job.

. . . a fast approach to important cost savings

Any plant, no matter how large, consists of many "small plants" or separate manufacturing centers. Sometimes these separate manufacturing centers consist of no more than a single operation; sometimes they embrace a group of related operations.

A quick approach to important cost savings can be to "spot automate" these separate "small plants" with Bellows Controlled-Air-Power Devices.

These packaged work units can be quickly incorporated into existing equipment to make it fully automatic; can be used to interlock or program a number of machines or operations; or can form the key components in low-cost, tool room-built, special purpose machines.

A Bellows Field Engineer (there is one or more in every major industrial area in the United States and Canada) will be glad to discuss with you the ways you can use to "spot automate" your plant. No obligation, of course. Phone him (he's in the book under "The Bellows Co.") or write to us in Akron.

Would you like a copy of this booklet?

Write Dept. IA 758. Ask for the booklet — "Automation can fit into Your Picture."

The Bellows Co.

DIVISION INTERNATIONAL BASIC ECONOMY CORPORATION

AKRON 9, OHIO

1126-B

Alaska Rich in Mineral Deposits

New State Has Resources of Iron and Tin

Economic future of the 49th state will be closely tied to its minerals development.

Area lacks only two of the 33 minerals now classified as strategic.—By R. R. Kay.

▪ Boom times are ahead for Alaska the new West Coast state.

This much is certain: Alaskans will do all they can to have a new "gold rush" follow on their new political status.

We recently toured Alaska, visiting Anchorage, Fairbanks, and Point Barrow, a short distance from Red Siberia.

Mineral Variety—Alaskans believe their territory-state is the minerals treasure house of the nation. Its immense 586,000 sq mi of land has untapped resources of all but two of the 33 minerals now classified strategic. Only industrial diamonds and bauxite haven't yet been found.

The Kenai Peninsula, in the south, is enjoying an Oklahoma-type oil boom. And reserves of coal, gold, copper, silver, platinum, tungsten, nickel, tin, and iron abound there.

TREASURE HOUSE: Indicated here are general locations of Alaska's natural resources including gold, copper, and tin. (Wide World photo.)

Iron Deposits Surveyed—Three extensive iron ore deposits are now under active survey. U. S. Steel is testing a huge field. Near Seward you can find tin, copper, scheelite (a source of tungsten), coal, asbestos, and graphite.

Alaskan Commissioner of Mines Phil R. Holdsworth reports that the most important mineral resource there is tin—the only workable deposits under the U. S. flag. "Lode tin deposits are commonplace," he says.

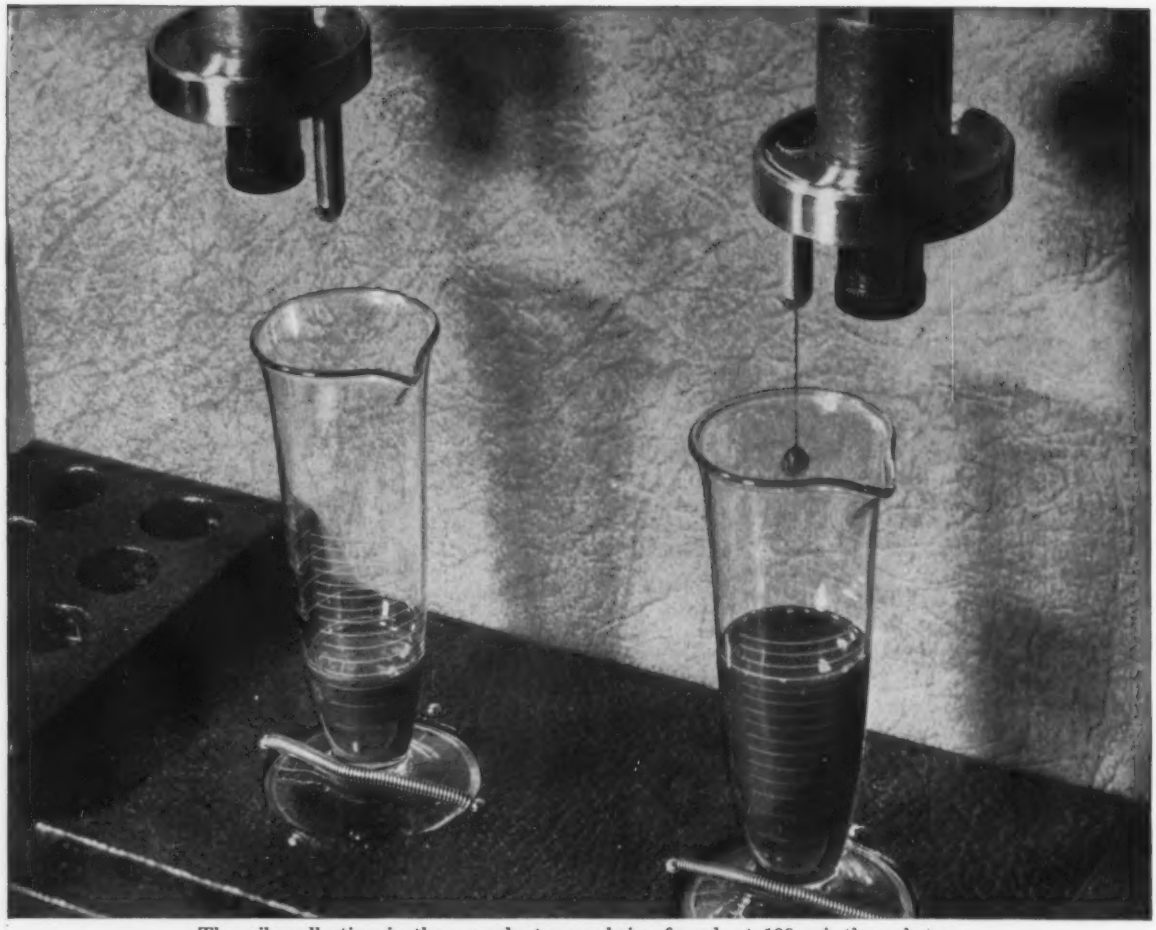
What about power for industry? Southeastern Alaska, alone, has about 1/10 as much water power ready for harnessing as there is power from all sources in the other 48 states.

Tax Benefits Pushed—How does statehood open the doors to development? Over 100 million acres now under Federal control will go to the new state. This vast area will be open to exploitation. It's believed that there will be thousands of new jobs.

What will Alaska do to make immigrating industries feel at home? Well, for one thing, as Gov. Michael A. Stepovich points out, the legislature has approved a 10-year tax-exempt program.

Will Aid Northwest—What will Alaska's statehood mean for the Pacific Northwest? Immediately expanding markets. That's how Sen. Warren G. Magnuson, D, Wash., sees it.

Most of Alaska's imports are shipped across Seattle wharves.



The oils collecting in these graduates are being forced, at 100 psi, through two sintered bronze bearings. Although each oil has the same viscosity, the Suntac on the left is leaking *only one quarter as much as* the straight oil on the right.

Desk-top demonstration proves that SUNTAC HYDRAULIC OILS can cut your oil losses . . . up to 75%

Suntac® oils are competitive in price, competitive in quality, *and unique in their ability to reduce oil leakage without costly shutdowns.*

Suntac oils are high-quality, exceptionally stable mineral oils especially compounded to reduce leakage. Experience proves that they give longer pump and seal life with higher overall operating efficiency.

See for yourself how a Suntac oil can cut your oil costs. A simple desk-top demonstration will show you how.

Ask your Sun man to show you how others have reduced oil consumption, or write to Dept. IA-7.

Industrial Products Department

SUN OIL COMPANY, Phila. 3, Pa.

SUNOCO

In Canada: Sun Oil Company Limited, Toronto and Montreal

Buy Maintenance When Buying

Choose Tools With Repair Costs in Mind

Users should be willing to pay for machines with maintenance-reducing features, says GE's L. F. Lewis.

He lists suggestions of what buyers should ask of manufacturers.—By E. J. Egan, Jr.

▪ Here's some good advice for anyone about to buy automatic equipment—a machine tool, let's say. It comes from General Electric's L. F. Lewis, who offered it to a recent conference on automatic techniques sponsored jointly by the American Institute of Electrical Engineers, Institute of Radio Engineers, and American Society of Mechanical Engineers.

It may come as a shock to those who can't see anything but the lowest price tag on competitive machines offered for their approval. Because Mr. Lewis says you "should demand, and be prepared to pay for, features . . . which contribute to reduced maintenance expense."

He contends that "increasing complexity of control and measurement equipment leads inevitably to increased maintenance. He adds, bluntly, "Maintenance costs money."

What to Ask—Lewis offers a list of principal requirements for any buyer of automatic machinery who wants to cut maintenance costs. You can and should insist that the equipment manufacturer meet some of these, such as:

A quick way to locate and isolate trouble when it does occur.

Easy accessibility to malfunctioning components or subassemblies.

Quick removal and replaceability of defective parts.

Simplicity instead of unnecessary refinements in performance.

Adequate instruction books and trouble-shooting guides.

Buyer's Duties—Two other requirements are your responsibility as the buyer and user of automatic equipment. One is to set up and keep up a good maintenance routine in line with the manufacturer's instructions. The second is to make sure you always have an adequate supply of spare parts on hand.

More Equipment Study

The National Center of Education and Research in Equipment Policy at Illinois Institute of Technology, Chicago, will continue its program for another two years. Its purpose, according to Dr. Gerald J. Matchett, director, is to promote education and research in methods for acquiring and replacing industrial equipment.

Mass Production Exemplified

ON THEIR WAY: Transmission cases moving swiftly through six stations of this Heald Multi-Unit Bore-Matic typify "Detroit automation."

INDUSTRIAL BRIEFS

New Detroit Service—A $5,000,000 expansion program by Production Steel Co., Detroit, includes the organization of a new subsidiary, Production Steel Products, Inc. This division will offer a complete customer service program by stocking large inventories of hot rolled bars and shapes, cold finished bars, structurals, plates, galvanized, stainless steel, aluminum, and other specialty items.

Same Wave Length—R. L. Rod, president, Acoustica Associates, Inc. and S. R. Rich, president of The General Ultrasonics Co. announced the two companies have agreed to join forces. It is contemplated that The General Ultrasonics Co. will be operated as a wholly owned subsidiary of Acoustica with Mr. Rich as president.

Whirlybirds Hatch—The U. S. Army awarded Hiller Helicopters, Palo Alto, Calif., a $5.4 million contract for production of a new type, three-place helicopter designated the H-23D. Contract is for 108 of these new helicopters. They are used by the Army as a multi-mission unit in such jobs as training, observation, reconnaissance and evacuation.

"Let me have a look at that job order!"

Fifth Wheels to Roll—Fontaine Truck Equipment Co., Inc., Birmingham, Ala., producers of "fifth wheels" for the automobile truck manufacturing industry, is completing a $150,000 expansion program that will add 40,000 sq ft of manufacturing space to its plant. The "fifth wheel" is a steel truck trailer coupler made from a steel plate.

Latest in Cargo Handling — A new $700,000 dock has been put into operation by Cities Service Oil Co. at its Fairfield Terminal in Baltimore Harbor. The addition of the 770-ft finger-type dock with a three-way electric crane will permit unloading of more than 10 million gallons of petroleum products in just 15 hours.

Utility Contract — The Fluor Corp., Ltd., has been awarded a contract by Shell Chemical Corp. to engineer and construct utilities and related offsite facilities for Shells' glycerine and acrolein plants at Norco, La. Construction is scheduled to be completed late next year.

Easy Identification — The New York Air Brake Co. has changed the name of its manufacturing division in Kalamazoo, Mich. to the HYDRECO Division. The change was made to more closely associate the division with the trade name HYDRECO carried by the industrial hydraulic equipment built at this plant.

Change in Status — Universal Atlas Cement Co., Union Supply Co. and Homewood Stores Co., wholly owned subsidiaries, have become divisions of U. S. Steel Corp. C. B. Baker is president of Universal Atlas, while D. H. Boyd is president of Union Supply and Homewood Stores.

Strip Special — The Seymour Mfg. Co., Seymour, Conn. has entered the thin gage metal strip field. The company is producing specialized products; nickel, silver, phosphor, bronze, brass and other alloys, down to .001-in. in a wide range of commercial widths.

New Head of Steam — The Bureau of Ships has awarded a $4.5 million contract to De Laval Steam Turbine Co., Trenton, N. J. The Navy announced the contract is for the design and manufacture of the steam propulsion plant machinery for a nuclear-powered submarine.

Buying Made Easy—A 42-page price schedule has been issued by Riverside-Alloy Metal Div., H. K. Porter Co., Inc. The book features monel, inconel, inconel X, nickel clad copper and other special nickel alloys. A special page on many of the new super alloys has been added.

Barrel Finishing Asset—Wheelabrator Corp., Mishawaka, Ind., has formed a new barrel finishing and wet blasting division. By acquiring the assets of Crandall Engr. & Mfg. Inc., Vicksburg, Mich., the company adds a complete line of barrel finishing machines. Manufacturing and sales headquarters will be in Vicksburg.

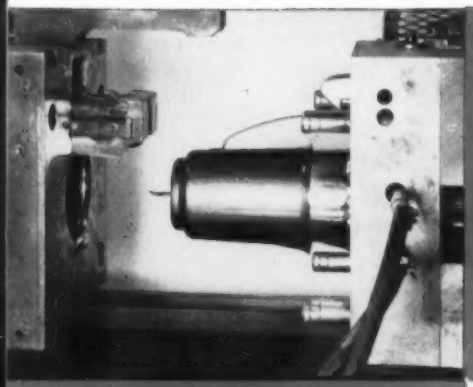
Radiation Question—Vitro Engineering Co., Div. of Vitro Corp. of America, has a contract to make a feasibility study of an ultra high-level radiation laboratory. The contract was awarded by Associated Universities Inc., which operated the Brookhaven National Laboratory under contract to the U. S. Atomic Energy Commission.

Under One Roof — Reynolds Metals Co., Richmond, Va., will erect a combination office and warehouse building in Louisville, Ky. The facility will be used by Reynolds Aluminum Supply Co., a Reynolds subsidiary with headquarters in Atlanta, Ga., and with offices and warehouses in ten key cities in the Southwest.

Winders Agree—Sealol Winders, Inc., newly formed subsidiary of Sealol Corp., obtained exclusive rights to manufacture and sell Temco Winders. Perfected in the early 1950's, Temco Winders provide automatically controlled constant tension during winding operations in the paper, textile, rubber, plastic, wire, and metal industries.

names that mean

"*First Quality Guaranteed*"



DIE STEELS

for
plastic molds
and die casting dies

MC The Mold and Cavity die steel made with particular care to permit blemish-free, highly finished surfaces. Furnished heat treated to 300 Brinell or annealed. Very deep hardening —uniform throughout large sections. Very low movement when oil quenched. For lower finishing costs and longer die life, use MC!

Speed-Cut Free-machining at 300 Brinell. Choose Speed-Cut for economy in producing backing plates, cavity plates, spacer blocks and other plastic die parts. And when you must avoid *all* movement, machine Speed-Cut after hardening—with ease!

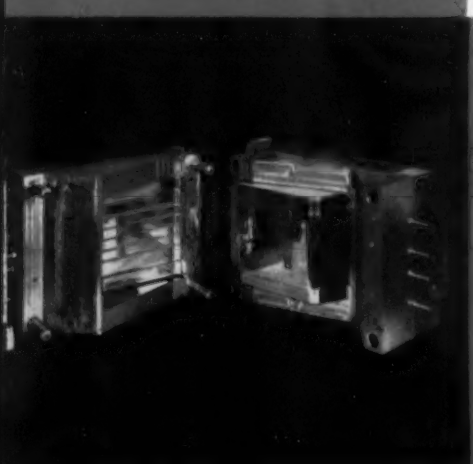
Hotform The original 5% chromium, most widely-used die casting die steel. Will withstand extremes of service conditions—tough, strong, highly resistant to thermal shock.

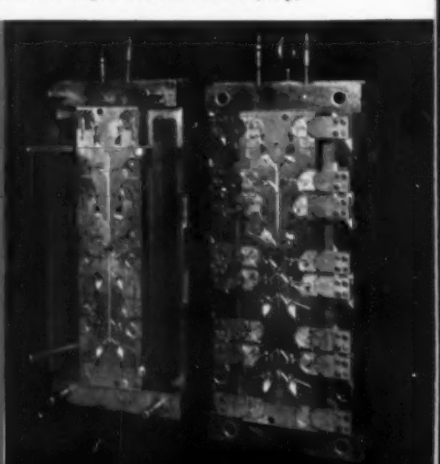
Write for detailed Data Sheets

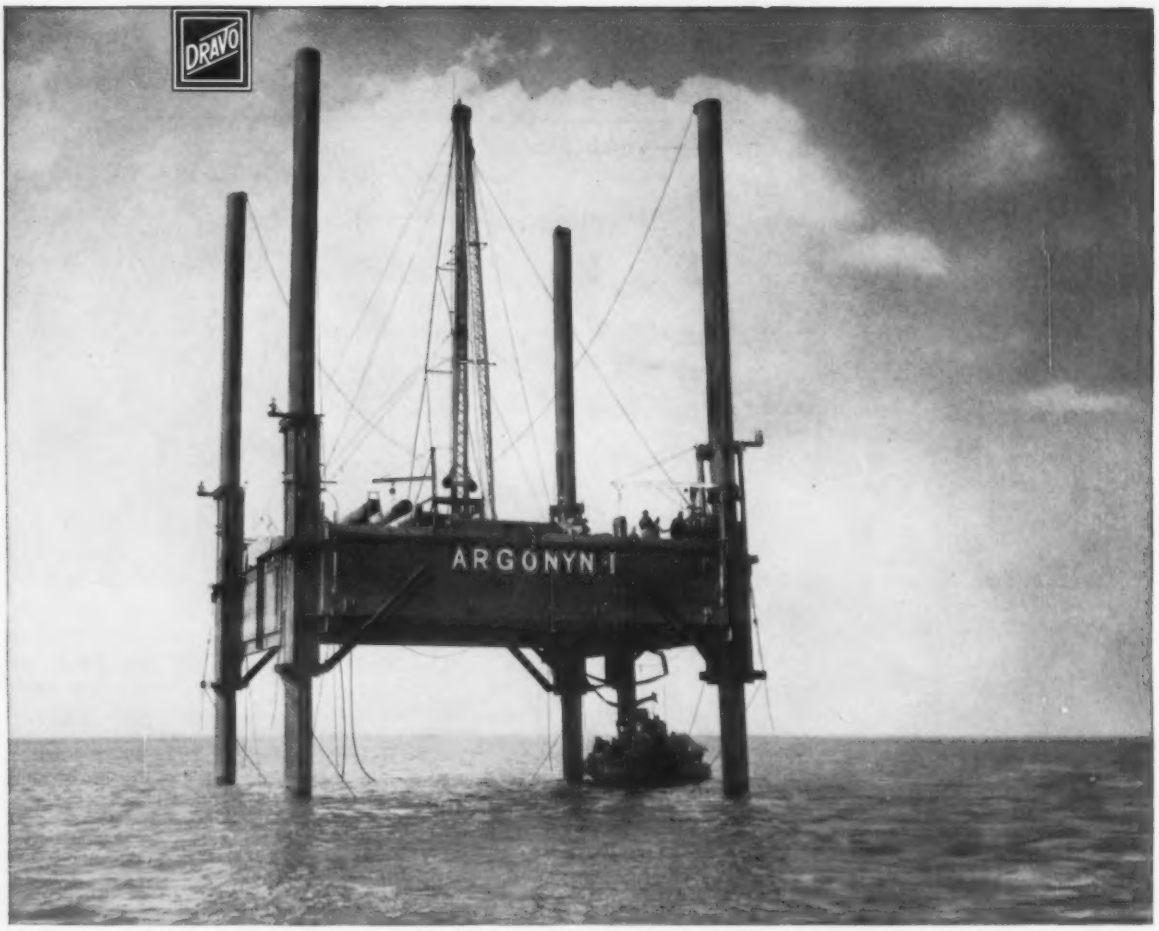
Vanadium-Alloys Steel Company

LATROBE, PENNSYLVANIA

SUBSIDIARIES: Colonial Steel Co. • Anchor Drawn Steel Co. • Pittsburgh Tool Steel Wire Co. • Vanadium-Alloys Steel Canada Limited • Vanadium-Alloys Steel Societa Italiana Per Azioni • EUROPEAN ASSOCIATES: Societe Commentryenne Des Aciers Fins Vanadium-Alloys (France) Nazionale Cogne Societa Italiana (Italy)







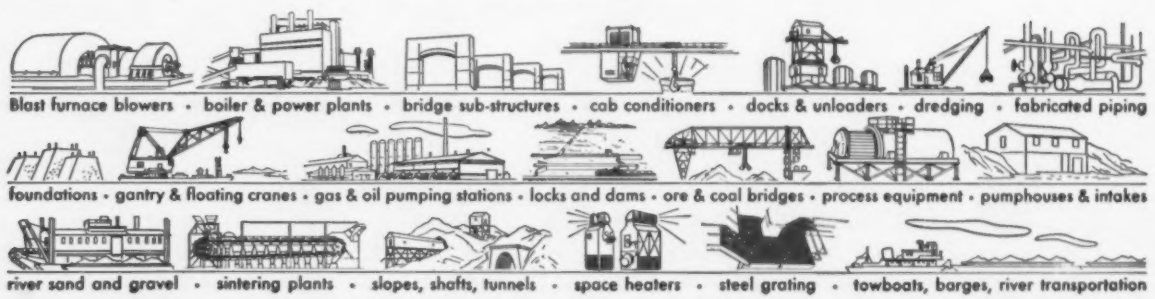
First Offshore Drilling Platform on U. S. Side of Lake Erie Built by Dravo

The first offshore gas well on the American side of Lake Erie is being drilled by New York State Natural Gas Corporation. Operations are underway, near Conneaut, Ohio, from a new mobile rig built by Dravo.

The "Argonyn-1" will work in 30 to 60 feet of water and can be towed easily from one site to another. Of welded pontoon construction, it is 50 feet square. At each location, the 130-foot-long legs are driven firmly into the lake bottom and the platform is hoisted by dual hydraulic jacks on each leg.

Dravo's wide experience on construction jobs "in or around water" can help you realize genuine economies on such projects. For information on this or the other products and services pictured below, write DRAVO CORPORATION, PITTSBURGH 25, PENNSYLVANIA.

DRAVO
CORPORATION



V. J. Boll, promoted to asst. vice president, Contract Mfg. Div., The Sheffield Corp., Dayton, O., a subsidiary of Bendix Aviation Corp.; **T. W. Clark,** appointed asst. vice president, Service Facilities Div.

Following appointments are within the Sales Dept. of the Machine Tool Div. of Brown & Sharpe Mfg. Co., Providence, R. I. **A. R. Sparrow,** appointed director, grinding machine sales; **W. W. Appleton,** named director, screw machine sales; **R. C. Smith,** sales representative for machine tools in Canada; **D. J. Brown,** named director, milling machine sales.

R. H. Chirgwin, appointed vice president, sales, Dynatron Corp., W. Hartford, Conn.

J. P. Gasser, appointed executive vice president, Dresser Industries, Inc., Dallas, Tex.

D. C. Duvall, elected executive vice president, Pittsburgh Steel Co.

J. H. Dalton, elected vice president, finance, Servo Corp. of America, New Hyde Park, N. Y.

J. P. Neely, named manager, machinery and equipment market sales, Reynolds Metals Co., Richmond, Va.

Patrick Bradley, named manager, distributor sales, American Hoist & Derrick Co.

Rear Admiral M. D. Matthews USN (Ret.), appointed manager, Service and Repair Div., De Laval Steam Turbine Co., Trenton, N. J.

H. G. Ingersoll, Jr., elected president and general manager, Ingersoll Steel Div., Borg-Warner Corp., Chicago.

R. L. Evans, appointed vice president, engineering, American Car & Foundry Div., ACF Industries, Inc.

F. H. Roby, appointed executive vice president, Federal Pacific Electric Co., Newark, N. J.

P. M. Schaefer, appointed superintendent, Wheeling Steel Corp.'s By-Product Coke Plant at Follansbee, W. Va.

Dr. Clarence Bremer, appointed technical director, Oakite Products, Inc.

Richard McL. Hillman, elected vice president—secretary and treasurer, Pittsburgh Steel Co.

W. C. Hall, elected president, general manager and member of the board of directors, Moffett Engineering Inc., Albany, Calif.

M. P. Kartalia, appointed general manager, Marketing Div., Square D Co., Detroit.

R. C. McDonald, appointed New York district manager, Clark Bros. Co., Olean, N. Y.

W. L. Male, named manager, employee relations, General Electric's Large Motor and Generator Dept.

A. J. Kenerleber, appointed manager, General Electric's new television picture tube replacement plant in Augusta, Ga.

R. E. Lauterbach, elected vice president, administration and planning, Pittsburgh Steel Co.

J. L. Sawson, promoted to superintendent, Blooming, Hot Strip, and Rolling Mills Dept., Aliquippa Works, Jones & Laughlin Steel Corp., Aliquippa, Pa.; **A. H. Ivell** and **J. F. McCarthy,** named asst. superintendents.

B. T. Brennan, elected president and chief executive officer, Anti-Corrosive Metal Products Co., Castleton-on-Hudson.

J. D. Sherman, promoted to field sales manager, Reed-Prentice Div., Package Machinery Co., E. Longmeadow, Mass.

C. W. Huflage, elected vice president, Cochron Foil Corp., Louisville, Ky., a wholly-owned subsidiary of The Anaconda Co.

F. W. Weldon, appointed district sales manager, Kelite Corp.

B. J. Fraher, appointed Eastern regional manager, and **R. S. Overton,** as director, marketing, Sales Div., SKF Industries, Inc., Phila-

Speaking of Records

. . . *our* records show that when a manufacturer once discovers the exceptional and uniform quality of Roebling flat spring steel, he becomes a permanent Roebling customer.

Your records for faster production and lower costs can be improved, in large measure, by Roebling's strict attention to supplying you with the finest flat spring steel available. When you need flat spring steel, specify Roebling. Write Wire and Cold Rolled Steel Products Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

These are typical of the many types of quality parts produced from Roebling flat spring steel.

ROEBLING

Branch Offices in Principal Cities • Subsidiary of The Colorado Fuel and Iron Corporation

Roebling... Your Product is Better for it

Storage bins into which sand ingredients are conveyed by a Fuller-Kinyon Conveying System. Note the pipe-line system which permits ingredients to be conveyed into their respective bins.

One of two Fuller-Kinyon Pumps which convey sand ingredients to storage bins and from bins to mixers.

FULLER-KINYON CONVEYING SYSTEM HANDLES THREE DIFFERENT MATERIALS EFFICIENTLY, WITHOUT WASTE

To reduce costs and speed up handling of foundry sand ingredients with minimum waste, General Steel Castings Corporation, Granite City, Illinois, installed a Fuller-Kinyon Conveying System.

Here's what it does for them—

The system unloads corn flour, silica flour and bentonite from hopper bottom cars by means of Fuller-Kinyon Pumps which convey these materials through pipe lines to a number of storage bins. The flexibility of the system makes it possible to unload cars in a fraction of the time that would be required manually, *and*, waste due to spillage is eliminated. Two pumps used in the operation can be moved on narrow gage tracks for spotting under cars or bins. One pump is used mainly for unloading and delivery to storage—the other for delivery from storage to supply bins above the mixers. However, it is possible to unload cars and reclaim from storage simultaneously. Where bins are located so that they cannot discharge directly to a pump, an F-H Airslide® conveys from bins to the pump.

Prior to the Fuller installation, material was received in bags and manually unloaded, stored and transported to the mixers. It figures—*costs were much higher*. Now, waste has been eliminated! Another important feature—the company has realized extra savings by purchasing materials in bulk.

Fuller air-conveying systems are in operation in hundreds of plants throughout industry, cutting costs and increasing profits, day in and day out. The next time you have a materials-handling problem, why not get in touch with Fuller . . . chances are you will also profit.

FULLER COMPANY GENERAL AMERICAN TRADE MARK

Fuller

. . . . pioneers in harnessing AIR

FULLER COMPANY

160 Bridge St., Catasauqua, Pa.

SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORPORATION

Birmingham · Chicago · Kansas City · Los Angeles · San Francisco · Seattle

pace your industry in product quality and value.... follow the **trend** to...

Brass · Copper · Aluminum

mill products
bearing this trademark

If you are planning a new product, let Scovill Technical Service help you select the proper alloy, temper, finish, etc., to bring out the BEST in it . . .

SCOVILL MANUFACTURING COMPANY
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PHONE PLAZA 4-1171

MADE IN U.S.A. TO THE STANDARDS OF AMERICAN INDUSTRY

*made better to bring out the **BEST** in your products*

your product quality

is safeguarded here

"Ninety-nine times out of a hundred, fabricators who pride themselves on smooth-running and profitable operations give a large share of the credit to the mill products they use.

"For example, every working day we roll miles of strip through this mill. Any significant variation of any kind in the metal would eventually show up as a variation in performance on the fabricator's production line.

"That's why at Scovill every experienced worker, every ultra-modern machine and method, is dedicated to maintaining an exceptional standard of uniformity in our Mill Products... to safeguard quality on your production line...to bring out the BEST in your products."

Howard R. Kraft, Rolling Mill Superintendent

BRASS • COPPER • ALUMINUM

4BC59

Scovill Manufacturing Company, Mill Products Division, 99 Mill St., Waterbury 20, Conn. Phone Plaza 4-1171.

delphia; **E. M. Ogle,** named manager, ball sales.

C. V. Fryling, named product manager, electrical alloy materials, Allegheny Ludlum Steel Corp., Pittsburgh.

R. R. Pierce, named manager, Corrosion Engineering Products Dept., Pennsalt Chemicals Corp.

J. H. Bly, named asst. sales manager, domestic sales, High Voltage Engineering Corp., Burlington, Mass.

J. T. Welch, appointed vice president, field sales, The Sheffield Corp., Dayton, O., subsidiary of Bendix Aviation Corp.

R. J. Halen, appointed works physician, Pittsburgh Works & Laughlin Steel Corp.

E. W. Mahaney, appointed chief metallurgist, The Youngstown Sheet & Tube Co.'s Indiana Harbor Works, E. Chicago, Ind.; **M. A.**

When you buy from U. S. Steel

STEEL + PLUS IN ACTION: RESEARCH

A fast train is a safe train when it rides on high-quality USS Wrought Steel Wheels. To test wheels, U. S. Steel's Research Center at Monroeville, Pa., operates the world's largest inertia dynamometer. It operates at speeds equivalent to 160 mph, can generate 68½ *million* foot pounds of energy—enough to lift a 34,000-ton ocean liner a foot in the air. The tests indicate how changes in design, steel composition and heat treatment can further improve the quality and safety of USS Wrought Steel Wheels.

American Bridge • American Steel & Wire and Cyclone Fence • Columbia-Geneva Steel • Consolidated Western Steel • National Tube • Oil Well Supply
Tennessee Coal & Iron • United States Steel Homes • United States Steel Products • United States Steel Supply and Gerrard Steel Strapping
United States Steel Export Company • Universal Atlas Cement Company

you get STEEL + PLUS

STEEL + PLUS IN ACTION: TECHNICAL ASSISTANCE

The Cemline Corporation makes a complete line of tanks, ranging from one gallon to 6,000 gallons —including the 15-gallon expansion tank and the 3,000-gallon steam-or-electric coil-heated water storage tank shown here. For Cemline's expansion tanks used in public buildings, USS metallurgists suggested a special quality steel which enabled them to meet a new and exacting safety code, yet produce the tanks economically.

STEEL + PLUS IN ACTION: FACILITIES

Only United States Steel can supply pipe like this. It's called expanded seamless line pipe. The pipe is pierced from a solid billet of steel and hot-worked to size. Then, it is *cold expanded,* and this cold-working process results in improved welding properties, plus higher yield strength (at least 10% higher). The National Tube Division of United States Steel developed this new pipe, and it is available in diameters from 16 to 26 inches, in a full range of wall thicknesses.

STEEL + PLUS IN ACTION: MARKETING ASSISTANCE

United States Steel maintains a staff of market development specialists who work with customers, and *customers'* customers, to make the most effective use of products made from steel. The picture shows a member of our marketing team in action. L. to r.: Walter Nelson, Vice President, General Bronze Corp.; Charles LeCraw, USS Construction Specialist; John Starrett, Perkins & Will, Architects. They are working out details for a new, all-steel curtain wall building.

USS **United States Steel**

Jones, named metallurgical engineer.

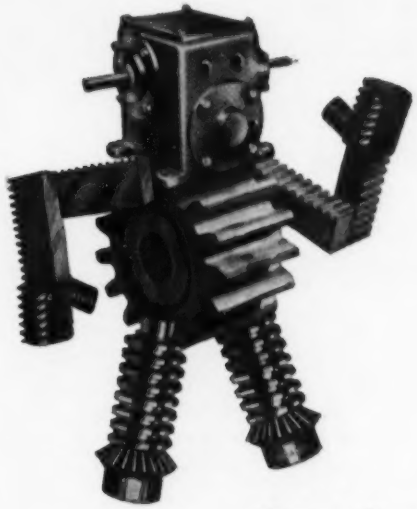
D. B. Sayle, appointed Northern Ohio sales representative, The Cleveland Crane & Engineering Co., Wickliffe, O.

W. I. Wilt, named vice president, Gage and Instruments Div., The Sheffield Corp., Dayton, O., subsidiary of Bendix Aviation Corp.

Dr. W. L. Borkowski, named asst. manager, chemical research, Research & Development Dept., Foote Mineral Co., Philadelphia; **D. H. Simpson,** promoted to analytical section head.

P. T. Lagrone, named manager, New Orleans, La., district, Westinghouse Electric Corp.'s Apparatus Sales Div.; **C. W. Mills,** named manager, Electric Utility Sales Dept. in Pittsburgh.

James Meehan, named asst. to the general sales manager, Sales Dept., Machine Tool Div., Brown & Sharpe Mfg. Co., Providence, R. I.



Gregory Grant says . . .

"WHY ALTER A STOCK GEAR?"

- Grant can manufacture gears in production lots to your specifications at less cost than you can purchase stock gears and alter them to your requirements.
- If you rebore a stock gear, you lose gear accuracy lower gear efficiency and shorten gear life.
- When you alter a stock gear in any way, it costs you men, money, and machinery that can be released for your own production.
- Send us your specifications and Grant can furnish gears with the hole size, slot for the key way, and tap for the set screw exactly as you require them. In other words, Grant can deliver gears ready for installation.
- Grant Precision gears can be supplied in precision class 1 or class 2 in any material.

SPUR GEARS

Available from .125" P.D. minimum, to 40" P.D. maximum — hobbed or shaped in a selection of 120 D.P. to 2½ D.P.

BEVEL AND MITER GEARS

Available from .375" D.P. minimum, to 24" P.D. maximum depending on ratio— with a selection of 64 D.P. to 2½ D.P.

WORMS AND WORM GEARS

Available from .500 P.D. to minimum, 35" P.D. maximum — hobbed in a selection of 64 D.P. to 2½ D.P.

HELICAL GEARS

Available from .250 P.D. minimum to 35" P.D. maximum — with a selection of 64 D.P to 2½ D.P.

FEED SCREWS

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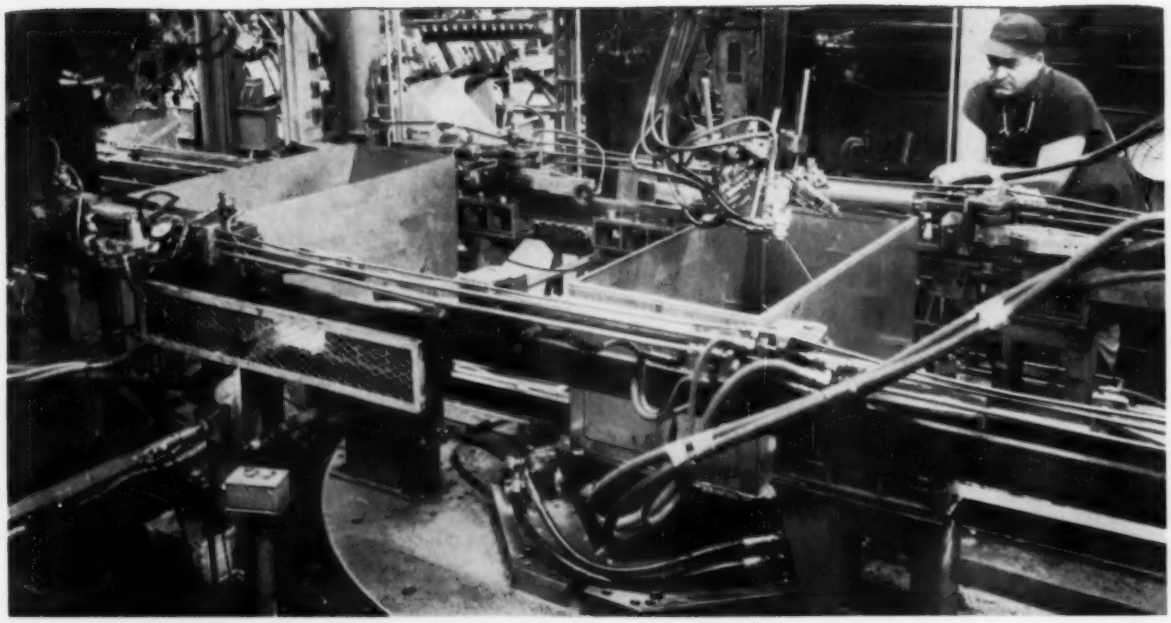


EXPANDS AND FORMS: Tanks move into Wallace expander at left for smoothing, embossing and flanging.

Complex Lines Switch Easily To Different Models

Automation seems a natural for big-volume products—until it involves several types and sizes.

Add to this the old bugaboo of yearly model changes and it really gets knotty.

But automated lines can be made to adapt. Appliance builders are solving the problems.

By V. C. Rice—Vice President, Mfg. and Engineering, Norge Div., Borg-Warner Corp., Muskegon Heights, Mich.

▪ Manufacture of electric refrigerators is among the most highly competitive in the appliance field. And, with automation, it's becoming more so.

Some of the latest thinking in this area is embodied in three new lines at the Norge. These lines—one for cabinets, one for "tanks" (interior five-wall food compartment liners) and one for doors—are mechanized to a point where heavy manual handling is nearly eliminated.

They include chiefly self-actuated equipment that forms major components, then welds them so that all three issue from the lines assembled.

Prior setups made good use of spot and seam welders. But they required a lot of hand loading and manual shifting between operations. Today, the welders are loaded largely by mechanical means (although a few parts are still placed by hand).

Some machines that are basically welders perform the added function of forming as a part of their cycles. United Welders, Inc., built the welders as well as the automated shifting and clamping units, including those that also do forming. Especially in the cabinet line, nearly all major components can be classed as welders. With a minimum of manual aid, the cabinet advances from welder to welder and ends up a unitary structure.

Highly Flexible—One of the biggest features, however, is that none of the three lines is confined to mak-

ing one design or one size of unit. All three can handle at least four different designs and can produce any of these in several different sizes.

All three lines include idle stations that can be used for future models. Since changeover time is also greatly reduced, the new setups are close to being universal, as far as the three main components of Norge refrigerator housings are concerned.

Each of the 20 stations in the cabinet line has a control panel on a balcony that parallels the line. Each main panel includes a wiring diagram on which pilot lights indicate quickly how each component is functioning. This helps pinpoint trouble and speeds repairs.

The cabinet line is 150 ft long and can turn out 150 cabinets an hour with only 8 men; this includes the operator of the heavy blanking press, but not those who produce back panel and cross rail assemblies in a separate area. These subassemblies are hand loaded where needed and welded into the cabinet assembly on the line.

Three Blank Sizes — Production on the cabinet starts with oblong blanks of one width and three different lengths up to a maximum of 17 ft 6 in. The 20-gage steel blanks in each case are long enough to form the top and two sides of a cabinet.

Blanks are placed on an elevating table at one end of the 200-ton Struthers-Wells blanking press. As the operator feeds each blank in, it's advanced to a stop by a conveyor that is part of the press setup.

When the die closes, it notches and pierces the flat blank. Side scrap is cut up and some pieces are forced through the die. All scrap drops onto belts that deliver it to scrap boxes.

Bars moving across the die discharge the blank at the back of the press and the blank advances down an idle roller incline to live rollers that feed it to a set of Yoder rolls. These form a flange along one edge, and a channel-like double flange portion along the opposite edge; one leg and the web of the channel are double thickness.

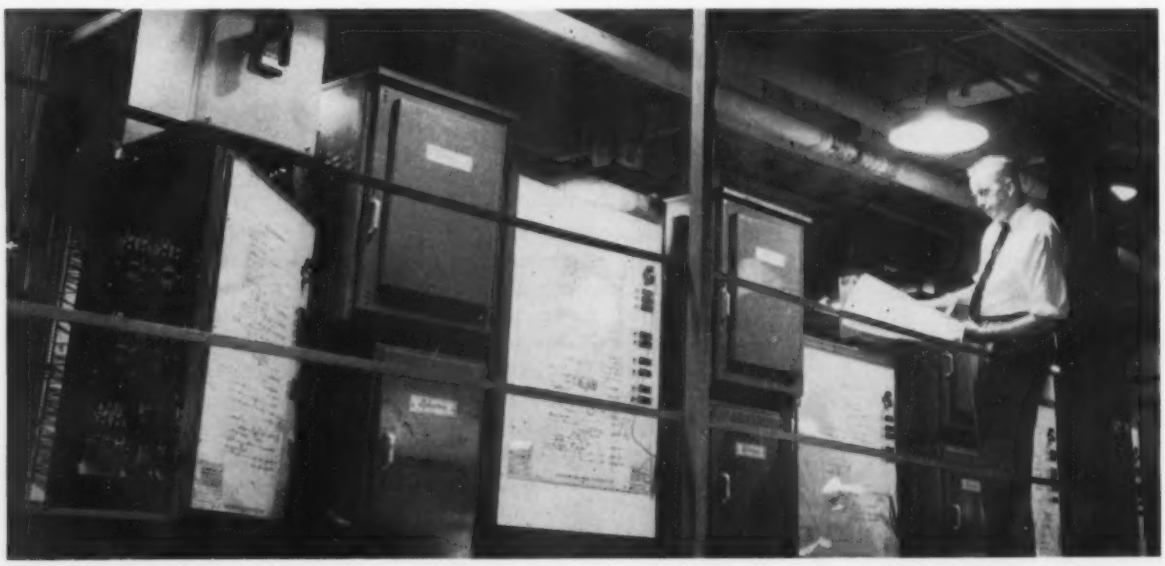
As each formed length leaves the rolls, the piece is moved automatically and transversely into station 1. There, the piece is loaded onto a through shuttle for motion parallel to the line. After shuttling to station 2, some minor brackets are set in place by hand and spot welded to the panel.

At station 3, the two ends of the panel are U-formed upward, making a three-sided structure: the portion that becomes the top remains horizontal at the bottom. Forming produces two mitered joints at front flanges, which are then mash seam welded. Spot welds are made at back corners.

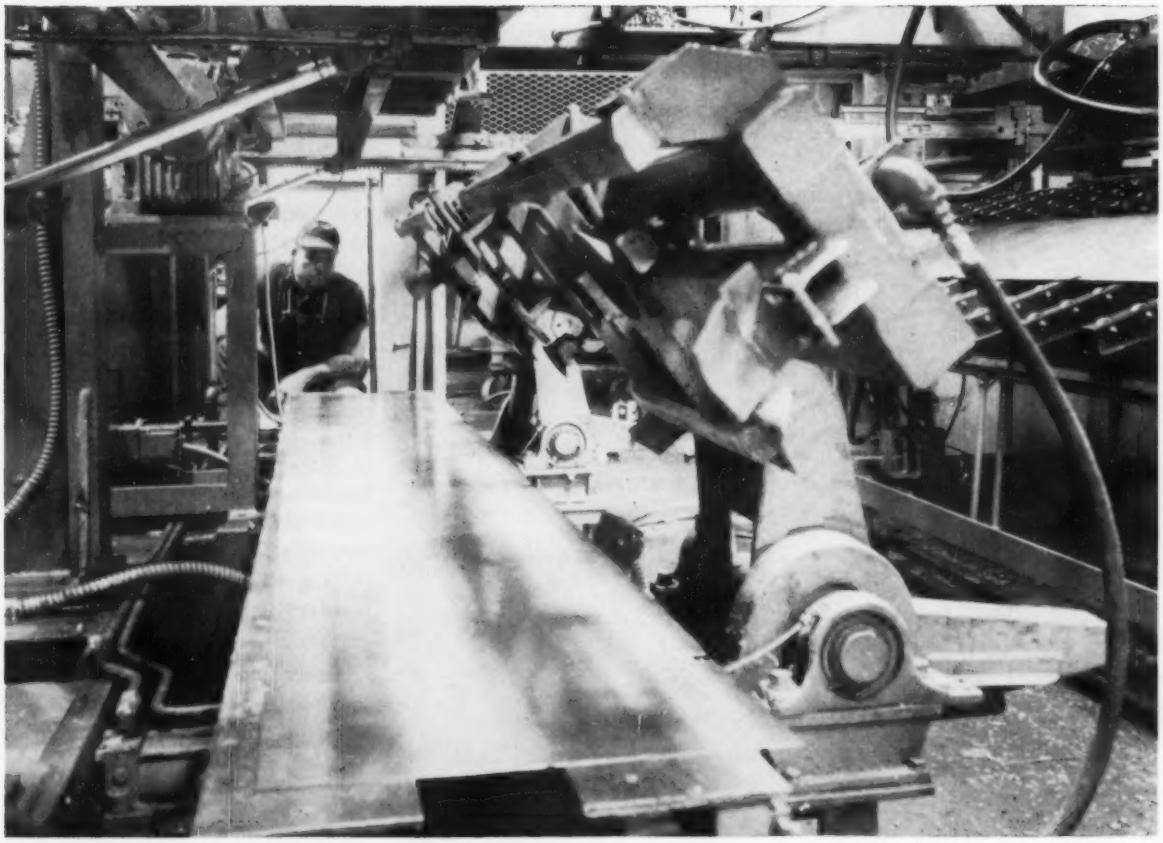
Also Smooths Welds — At stations 4 and 5, back panel subassemblies (of 31- or 28-in. length only) are put in place and spot welded on 2-in. centers along rear flanges. Station 6 is blank. At station 7, cold planishing rolls press and advance against the mitered mash welds to give them a smoother finish.

At station 8, a cross rail subassembly is placed manually on a power driven holding device that travels up and over the top of the machine to thread the subassembly into its proper location. It is then spot welded in two places at each end to the front outer face flanges of the cabinet shell. Similar welds are made at outer and inner flanges at station 9.

Two upper corner gussets are applied and spot welded at station 10 and other welds are made to fasten lower corner gussets at station 11. Tank mounting brackets



NERVE CENTER: Controls are on balcony above cabinet line. Lights and diagrams aid troubleshooting.



NO HANDLING: Vacuum cups send notched and pierced strip to wraparound unit that forms four-sided tanks.

are added and welded at station 12 and a side bracket for the tank at station 13.

Fast Work—Front inside corner brackets are applied and welded at station 14. A bottom panel is loaded and welded to the front cross rail and back panel at station 15. At station 16, two side tank-mounting brackets are added and welded.

In station 17, the bottom is spot welded to side flanges and a freezer bracket to the crossrail. At station 18, a 90° bend and form operation is applied to the cabinet bottom. Then, at station 19, two bottom gliders are applied and spot welded. When the cabinet has been indexed to the final station 20, it is rotated 90°, turned over 90° and released onto a table for inspection.

Back panels are subassemblies delivered to the line ready for application. They are placed by hand and locked to gate fixtures. The fixtures used in this station are indexed about a vertical axis; they're arranged so that one back can be placed in a gate-like fixture and locked at an outer position while the prior assembly is being welded at an inner position.

Move Automatically — Indexing from station to station along the cabinet line is entirely automatic. In some parts of the line it's done by carriages on overhead tracks. They have grippers to clamp the upper ends of cabinet sides, lift the cabinet, shuttle it to the next station and lower it into the fixture there.

At each station, there is a fixture that locks the workpiece and holds it while welding is done. After welds are made, the components move back so the workpiece will clear them.

On stations in which parts are placed by hand, controls are located where the operator must be in safe position to press the start button.

The longest changeover of the line (bracket location, length and width) requires 45 minutes maximum; only 20 minutes are needed for bracket changes only.

Takes Variety of Tanks — The tank (food compartment liner) line can make tanks in two widths and five lengths, the latter being 35 in. minimum and 47½ in. maximum. Unlike the cabinet, which is produced on end, the tank is horizontal at most stations. Fewer stations are required than on the cabinet line, and they are spaced on 6-ft centers.

Oblong blanks reach the tank line in mill run widths and sheared to length. After destacking by hand, blanks are fed to a press that

notches edges for subsequent forming at corners and flanging.

Unloading of blanks is done by vacuum cup transfer devices that deposit the blank on a flipover. Loading then is done onto a wraparound machine that forms the box with an overlap on top and brings this overlap below a mash welding wheel and above a copper backup bar. Thereupon the wheel is advanced to make the mash seam weld that joins the two ends of the blank. This produces an oblong four-walled box without flanges.

At completion of the weld, the wheel retracts and the fixture collapses so that the box can be removed; it rotates 90° about a horizontal axis so that the open sides are at top and bottom. The box moves onto a table at Station 3, which lowers it for advance to station 4. There, lowering into a Wallace expander located in a pit takes place.

Expander Also Forms—In the expander, the metal is stretched to remove any buckling and prevent later distortion when enamel firing is subsequently performed.

The Wallace machine has dies that collapse for loading and unloading and expand against outer dies to perform the stretching. At the end of the stroke, they produce stiffening embossments in both ends. The expander also forms back flanges at the bottom, inwardly, and the top front flanges outwardly. When the dies retract, the elevator lifts the formed and closely sized piece for advance to idle station 5.

After transfer to station 6, the formed piece receives, via a side loader, a prepierced back panel that is clamped against copper backup bars along the side back flanges. Then, mash seam welds are made along these two flanges simultaneously. At station 7, mash seam welding of the back to top and bottom flanges is done in the same way as for side seams.

Then Come the Holes—In the next five stations, the tank is brought between dies in which all holes are pierced. At each of these stations, the tank is positioned automatically to bring successive panels into correct location for piercing.

At the final station on this line, pressure is applied to rolls that planish all four seams, giving them smoother surfaces. Then the cabinet is fed off onto a gravity conveyor.

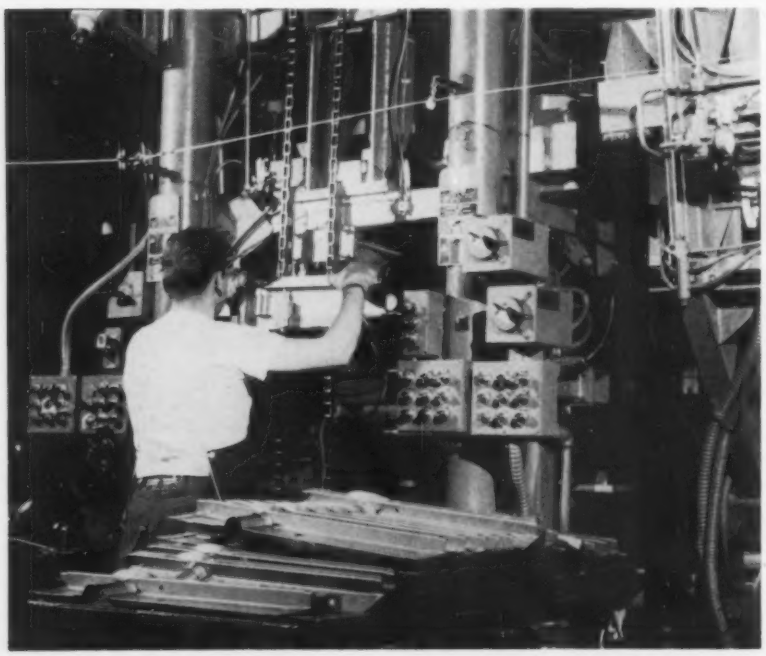
In place of the 10 men formerly needed, the new tank line has only two men at the initial press, one at the station where the back panel is loaded and one to inspect the finished product. Yet, it can turn out 150 tanks an hour.

Changeovers on this line require from 8 to 12 hours. This is longer than on other lines mainly because many sets of dies are involved; those on the expander require hoisting of several sections from a pit and lowering and adjustment of the new sets. Adjustments needed at other stations are simpler and take less time, but piercing dies have to be changed.

Door Line Is Simpler—In the third line, doors are produced in 24 and 34 in. widths and different lengths. The line can handle either the single-door or dual-door type. This is by far the simplest of the three lines, as the door is drawn and flanged before it reaches the line. Parts to be added are small and quickly placed, and operations are relatively few and rapid.

The door line requires only three men and can produce 250 to 300 doors per hour. In some cases changeovers can be made in as little as 15 minutes.

Overall benefits of the three lines are large and amply justify the $3 million investment. It's estimated that the lines will continue in use for fully five years, over which the investment will be amortized completely. Some changes for new models are anticipated, but construction is such that they can be made without the lines as a whole becoming obsolete during this period.



FEEDS SPECIAL PARTS: Crossrail subassemblies are placed by hand in fixture that positions them for spot welding to the cabinets.

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Surface Checks Aid Tool Control

When a machined surface gets too rough, it's time to change cutting tools.

Precision measurement will save you the expense of changing tools too soon, or spoiling work because you waited too long.

▪ Control of surface finish begins with adequate tooling. But given the tooling, how do you decide when tools need replacement? This is especially the problem for shops handling precision finishes.

Naked-eye finish inspections result in changing tools far too often. That was the experience of one firm, the Lehner Screw Machine Co., Monroe Falls, O., producer of aeronautical brake parts.

"As opposed to the situation not many years ago, when we seldom encountered rigid finish specifications," reports Charles Lehner, General Manager, "we now find that practically every customer requires that we hold a certain finish on their job."

Invest in Unit—For Lehner, the problem was solved by the purchase of a portable electronic device for measuring surface finishes. Called Surfindicator, the unit is made by Brush Instruments, Div. of Clevite Corp., Cleveland.

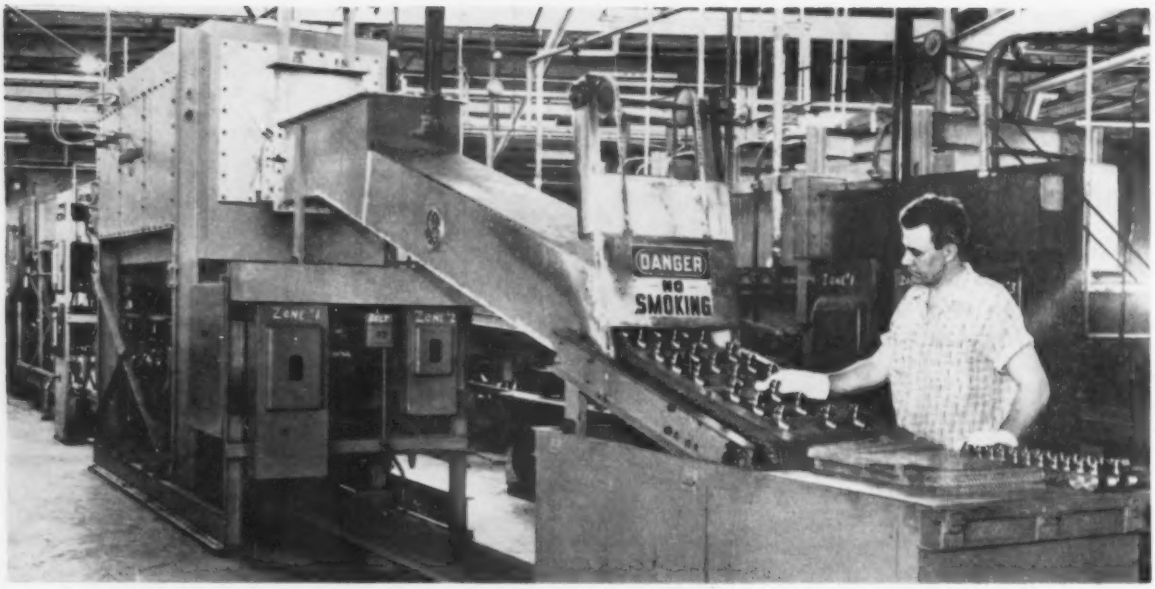
The lightweight self-contained unit is calibrated to measure surface roughness from 1 to 1000 microinches. Its manually-operated pickup arm contains a 0.005-in. radius diamond tip stylus which accurately traces the minute "hills and valleys" in the surface of a material being tested.

Cut Tool Replacement — Along with the ability to measure surface finish quickly and accurately, Lehner has been able to cut production costs sharply by reducing tool replacement. The elimination of unnecessary tooling costs and time is only part of the story. The instrument enables Lehner to accept jobs requiring precision finishes that the firm could not previously handle.

In fact, it's these jobs that now account for a major proportion of shop production. The firm offers customers the opportunity of making their own finish inspections at the shop with the Surfindicator.

Readings on the unit's meter are controlled by a five-position range selector switch. The instrument makes tests on alloy, stainless and carbon steels, nonferrous metals, plastics, glass, and paper with equal ease and accuracy.

ROUTINE PRECISION: Inspector checks brass cushion inserts for a 16-microinch finish requirement. The instrument works on many materials.



FURNACE QUALIFIES: Hump-type furnace maintains reducing atmosphere. Unlike parts shown, which are loaded on wire baskets, the blades are placed directly on the mesh belt, eliminating heavy trays.

Combine Brazing and Hardening In One Operation

By **R. E. Wright**—Industrial Heating Specialist, General Electric Co., Chicago, and **W. M. Hankes**—Production Engine Dept., General Electric Co., Evendale, O.

Can you find savings in a proven production operation?

While satisfied with the product in one setup, General Electric made a simple change to give two-fold benefits by cutting steps and reducing material and labor costs.

▪ By combining brazing and hardening steps into a single operation, production is speeded and costs are reduced. General Electric Co. has used this concept on the compressor blades of its J 47 jet engine from the beginning.

Although the combined method produced good quality blades, a better product could be produced at less cost if the brazing could be done without using flux. By making this change, the firm has saved over $45,000 per year in labor and material.

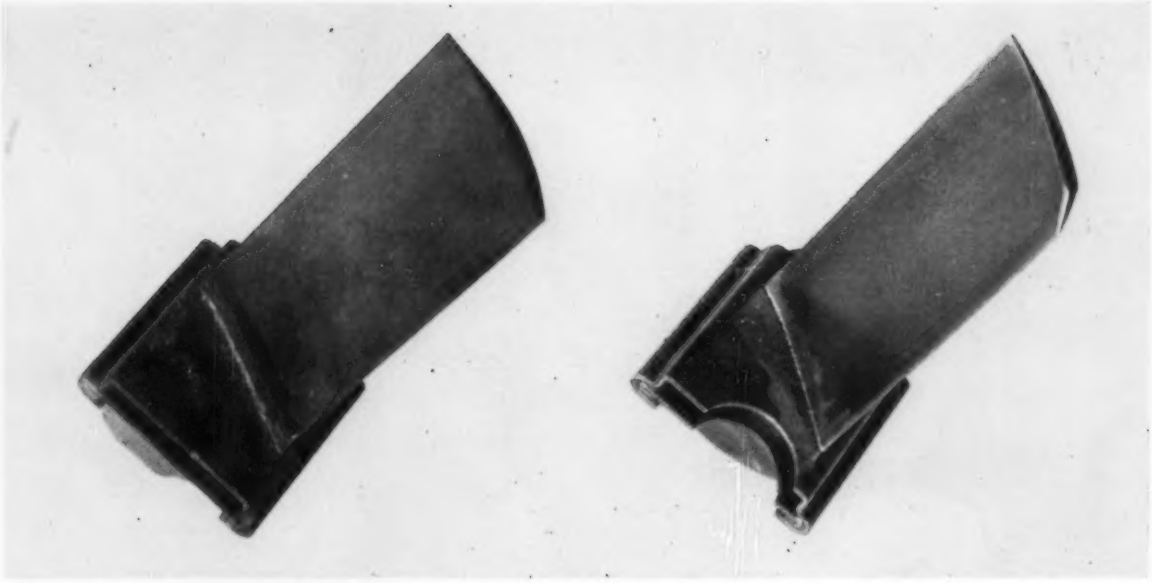
Made from type 403 stainless steel, base parts and the vane are welded together to form the fabricated blade. Silver brazing is used to give the joint stability and to dampen vibration.

In the former method each load of blades was prepared with silver brazing alloy and brazing flux. The load was conveyed into a controlled-atmosphere roller-hearth brazing and hardening furnace at 1750°F. Tempering was done at 1100°F.

Flux Discolors—As the blades emerged from the furnace, they were discolored and much of their surface was covered with flux residue. This residue had to be washed from the blades promptly, otherwise they would rust in a few hours.

The brazing alloy had the following analysis: silver 49-51, copper 14.5-16.5, zinc 13.5-17.5, cadmium 15-17, nickel 2.5-3.5, other 0.15 maximum, and liquidus temperature 1260°F.

Using this method, the alloy trays and grids had a combined weight of about 170 lb per 3 ft sq load, but



COMPARE SURFACES: Brazing with flux causes residue and discoloration (left). By using hydrogen atmosphere with low dew points in hump-type furnace, flux less brazing turns out clean surface (right).

carried a net weight of only 48 lb of blades. Production amounted to three loads or 1500 blades per hour.

Search for Better Way—To set up a fluxless brazing method, it was a case of selecting a furnace atmosphere which would reduce the oxides formed on the 403 stainless when heated to hardening and brazing temperatures.

Hydrogen atmospheres with low dew points have been used for years in retorts of batch-type furnaces to produce bright clean stainless parts. It was then a problem of finding a continuous furnace which could handle the quantity production and yet be capable of maintaining such an atmosphere with dew points on the order of —40°F or lower.

The final step was to find a brazing alloy to get the best results without flux. Its melting point should be reasonably close to, yet lower than the hardening temperature.

Furnace at Hand — The unit selected for the job is a hump-type mesh-belt furnace with an alloy muffle in the heating section and inclined entrance and exit chambers.

Rewards from Change in Equipment, Methods, and Material

1. **Flux and its applications eliminated, releasing several people for other work**
2. **Washing operation is eliminated, saving labor and the need for the washer.**
3. **Savings in cost of flux material amounts to $4,160 per year.**
4. **Clean, bright blades with superior finish emerge from furnace.**
5. **With no need for trays, cost of expensive fixtures and labor in handling them is saved.**
6. **Production increased 133 pct.**
7. **By placing parts directly on belt, power requirements are reduced.**

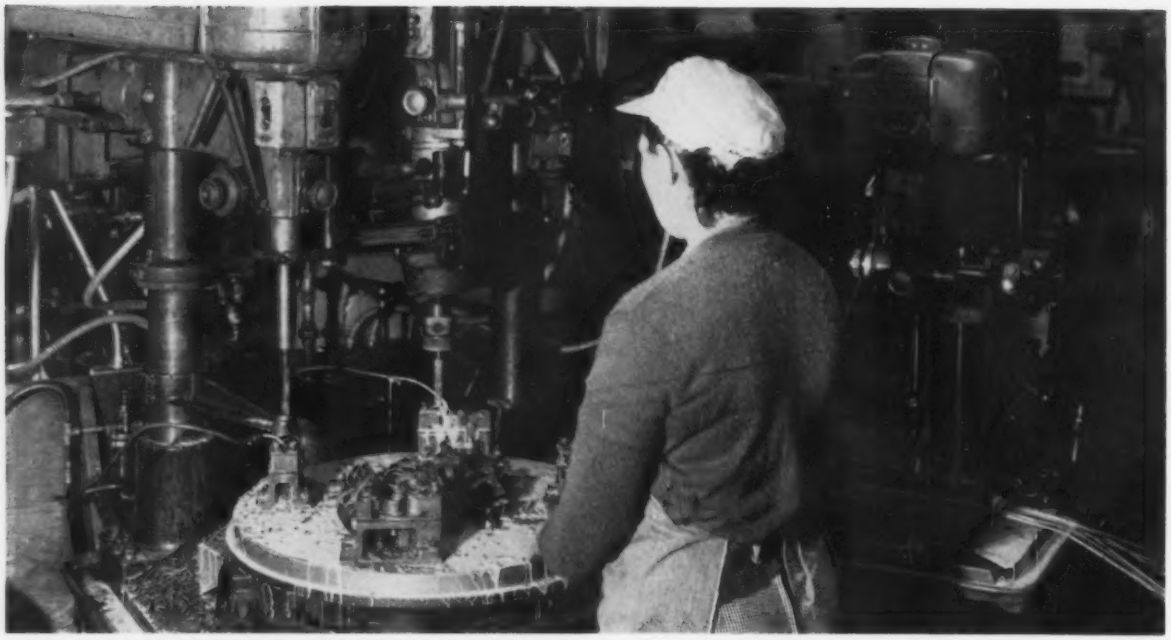
By placing the blades directly on the mesh belt, base down, the heavy alloy trays and grids were eliminated.

Pay-load efficiency increased 33 pct, resulting in considerable savings in power. Production increased from 1500 to 3500 blades per hour average.

For hardening, the blades are heated to 1900°F and atmosphere cooled. In tempering, they are heated to 1200°F and atmosphere cooled.

Pick Brazing Alloy—After experiments were made with various brazing alloys, the following analysis was selected: silver 53-55, copper 39-41, zinc 4-6, nickel 0.5-0.15, other 0.15 maximum, and liquidus temperature 1575°F.

Note that this brazing alloy has a melting temperature some 300° higher than that of the previous alloy used. With the melting point much closer to hardening temperature, it allows less time for the constituents of the brazing alloy to be distilled away from the joint area.



THREE-SPINDLE SETUP: Rotary index table allows operator to work with three spindles simultaneously.

Join Standard Components To Benefit Operator

By D. W. Gartner—Plant Manager, Columbian Vise Co., Cleveland

Research shows that you can combine basic drill-press units and automatic controls to boost output.

In fact, give an operator a combined setup and his output is multiplied by at least as many times as the number of operations combined.

It's a way to get maximum output without going to specialized equipment.

▪ Combine two or more drill presses with automatic feed and clamping units and a worker's output will be multiplied. That's the result of study of drilling work at the Bedford, O., plant of Columbian Vise Co.

Made from standard components, the setups may be put together for a particular job and used in different combinations as production needs change. They actually call for less operator skill than separate manually-operated tools.

Controls, too, may be combined so that the same switch is used to actuate clamping, indexing and spindle actions in sequence. Interlocking of controls protects equipment from operator errors.

Uniform Precision — While the major advantage is greater productivity, automatic feed and positioning insure uniform precision throughout a production run. It's important in tapping where precision is keyed to uniformity in feed.

Some setups are a simple combination of two drill-press spindles with automatic clamping and feed. In one such setup on a two-spindle Walker-Turner 20-inch drill-press table, one spindle drills and the other taps. To drill, the operator places a piece in the pneumatic workholding clamp and starts spindle action with a hand lever on the pneumatic feed attachment.

Instead of a standard motor, the second spindle has a reversing motor. As the spindle reaches the depth stop, it trips levers which exhaust the pneumatic feed cylinder and reverse the motor.

Holes may be as large as ⅞ in.

Production runs higher than 1,600 pieces per 8-hour day.

Twin Setup—In another case a twin setup performs two operations in sequence on two parts simultaneously. The machine consists of a two-spindle 20-in. Walker-Turner drill-press table with a horizontally mounted drill head behind each spindle and a sliding fixture with four workholding jigs mounted on it.

Pneumatic feeds control all four drill heads. The vertical heads drill ⅜-in. holes and the horizontal heads drill pin holes at the edge of the larger holes. The sliding fixture has two stations, each of which brings a piece into position under each vertical drill head.

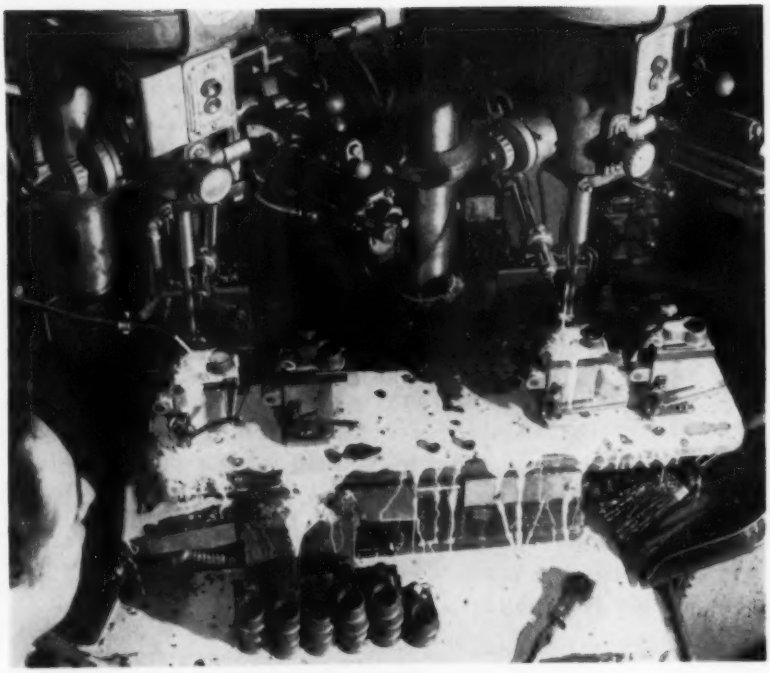
The operator loads the jigs and actuates the vertical drill-press spindles with a foot pedal. After the vertical spindles have retracted, he presses a second foot pedal to actuate the horizontally mounted heads to drill the pin holes.

He then shifts the sliding fixture to the other work station and repeats the cycle. While the work is in progress, the operator unloads and reloads the other two jigs.

Rotary Index—By using a rotary index table with four stations, an operator is able to keep three drill-press spindles working simultaneously. In this case the rotary table is mounted on a two-spindle Walker-Turner 20-in drill-press table. The operator simply loads the fixtures and starts each cycle with a foot-pedal.

The first spindle drills a 17/32-in. hole in one end of the work piece and the second taps it with a standard clutch-type attachment. After spindles retract the table indexes to the next position.

On unloading the piece from the table, the operator places it in the workholding fixture on the third drill press. This automatic unit uses a reversing motor to tap a ¾-in. cored hole in the piece. The spindle is belted to the motor through a back gear so that the 1750-rpm motor speed is reduced to 240 rpm for tapping.



DRILL AND TAP: By making both operations automatic, operator can load one fixture while other spindle operates.

DOUBLE DRILLING: Workholding fixture slides so that two jigs may be loaded while work is done on other two.

Solve Countless Problems To Build Giant Reactor Vessel

There are still cases where automation must yield to the touch of skilled craftsmen.

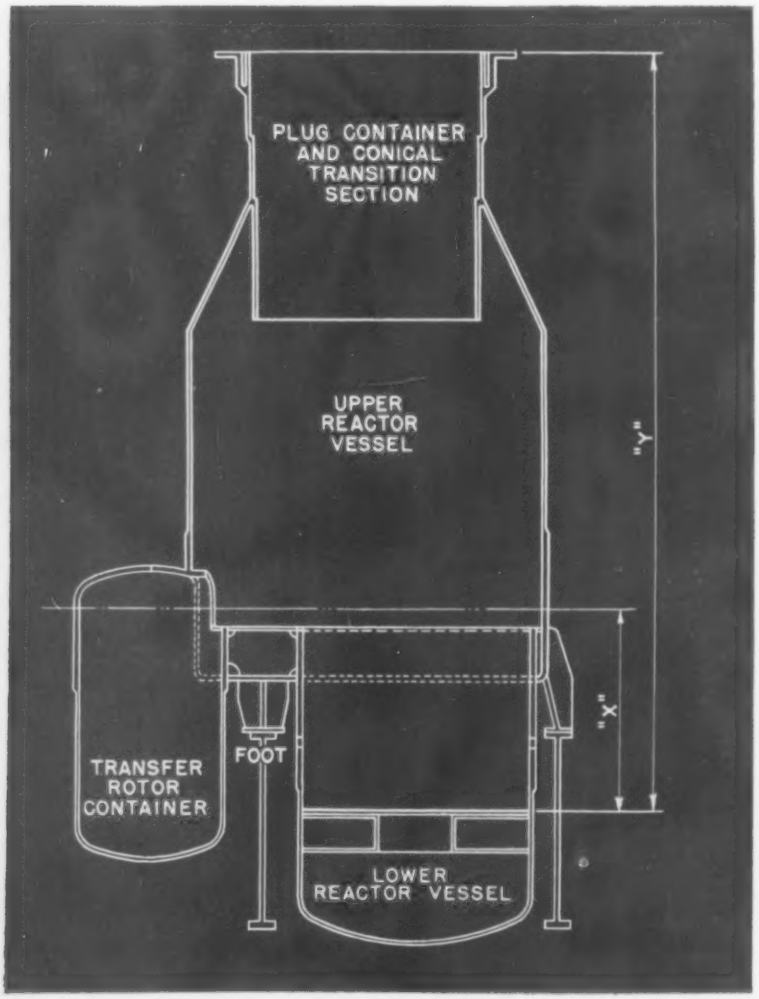
One such was the fabrication of a 91-ton stainless steel reactor vessel for the new Enrico Fermi Atomic Power Plant.

Human brains and hands licked a host of novel problems to build it right the first time.

▪ Unprecedented problems were the rule rather than the exception in fabricating what is said to be the most complex stainless steel pressure vessel of its size ever built. It's a 36-ft high, 183,000-lb reactor vessel recently shipped to Lagoona Beach, Mich., site of the Enrico Fermi Atomic Power Plant.

Detailed design and fabrication of the vessel was done by Combustion Engineering, Inc., at the firm's Chattanooga, Tenn., Div.

As shown in the accompanying line drawing, the final assembly consists of four major components: the lower vessel, the upper vessel, the conical transition section and plug container, and the transfer rotor container. Designing and producing this giant welded structure was complicated by the eccentric relationship of the major components, plus the severe thermal and nuclear radiation conditions expected to occur during its regular operation.



HUGE TASK: Weld-joining the indicated major vessel components took almost two months. Dimensions "X" and "Y" were especially critical.

Safe-Design Factors—One of the design objectives was to achieve the safest type of vessel that could be built, considering such factors as pressure, steady-state temperature, temperature transients, the weight of internal structures and mechanisms, and external reactions.

In most places, vessel walls are heavier than those required by the ASME Boiler and Pressure Vessel Code for Unfired Pressure Vessels. Design areas not covered by the Code were investigated by advanced methods of stress analysis.

Because of its unique design features and the novel stainless steel fabrication problems that had to be solved, the reactor vessel was virtually hand made by skilled craftsmen. For the same reasons, its construction called for large and costly manufacturing facilities and equipment.

Big Equipment Needed—Among these equipment items were: a 15 million-v X-ray machine, a high-temperature annealing furnace, a

large sandblast unit, a 20-ft vertical boring mill, numerous large and special horizontal boring mills, and a variety of large weld-positioning devices. A 250-ton crane, 65 ft above floor level and spanning 80 ft, serviced this heavy equipment.

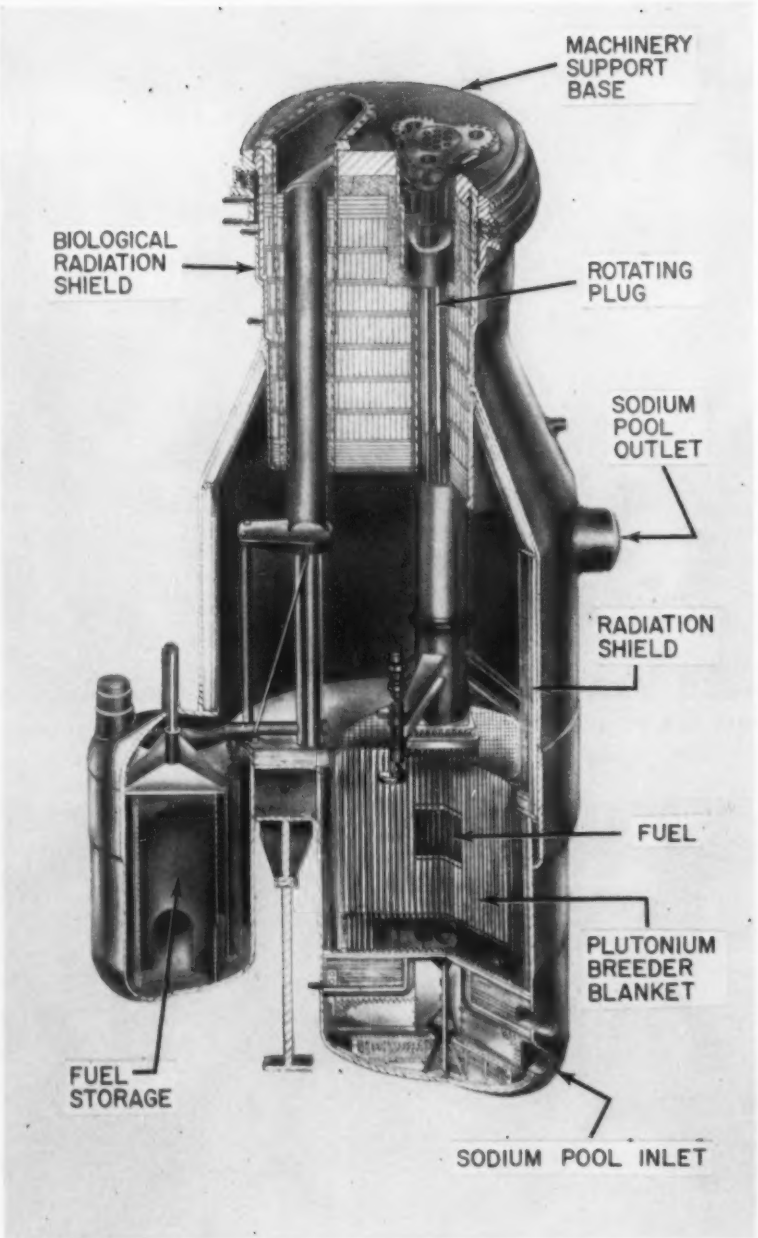
Because of the large size and thin walls of the vessel components and the completed assembly, extreme care was needed to prevent damage in handling. Special jigs and fixtures were designed to turn and position the components, to aid in assembly and to move large sections without distorting them.

Measure Welds in Miles—Construction involved depositing nearly a half mile of weld material in the full penetrant weld seams of the stainless steel vessel itself. More than a mile of additional weld metal was used for fabricating miscellaneous structural elements. All major vessel welds were radiographed, many with the 15 million-v betatron. Dye penetrants were used to detect surface flaws on all welds.

Welding in certain confined areas was often done with the aid of mirrors. In other areas, as small as 11 in. x 15 in., welders could not wear conventional safety helmets and were sometimes compelled to work in a doubled-up position to reach almost inaccessible spots. In some instances it was necessary to qualify welders each day before they began work in these cramped quarters.

It took nearly two months, on a seven-day week basis, to complete major closure welds between (1) the lower and upper reactor vessels and (2) the upper vessel and the conical transition section. This included time for X-ray and optical inspection.

In making the major closure welds, four welders worked simultaneously at locations carefully chosen to maintain alignment and parallelism of previously machined surfaces.

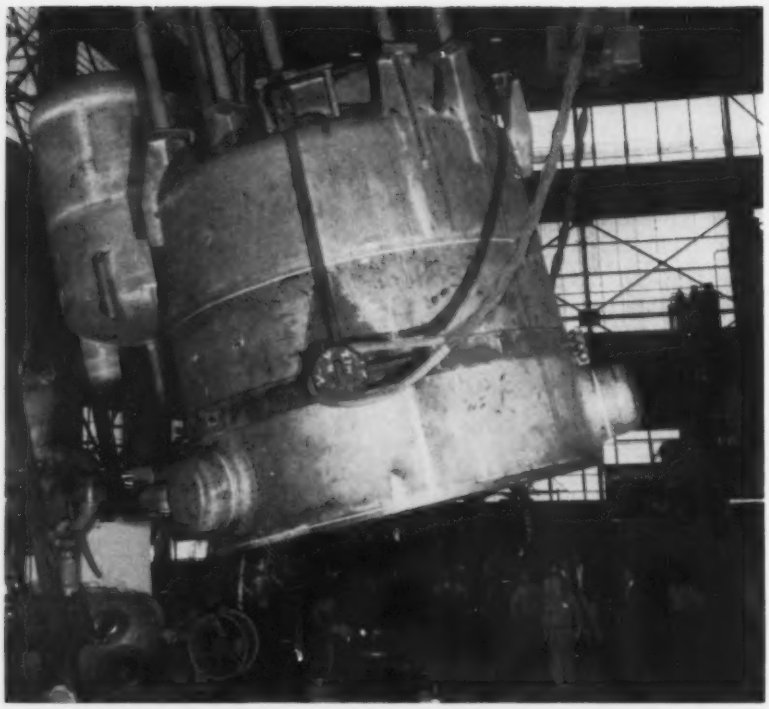


END RESULT: When it's finally installed at the power plant site, the reactor vessel will house these vital "fast-breeder" components.

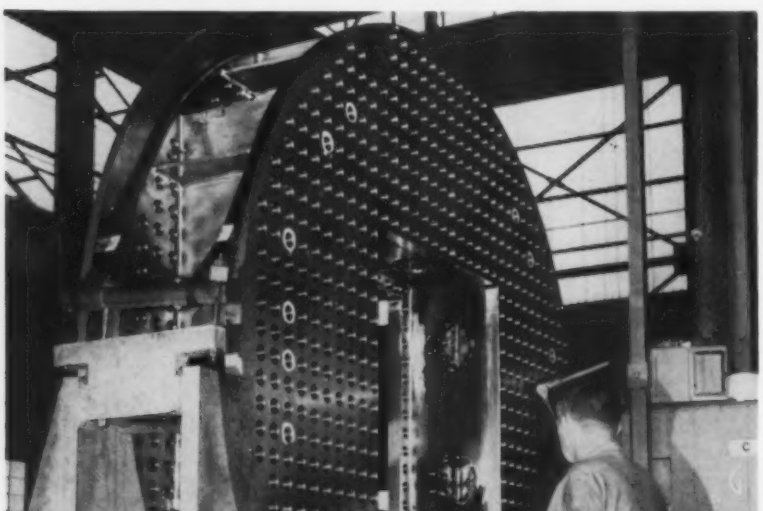
Study Models First — Problems of predicting and controlling weld shrinkage and distortion involved not only the amount but also the direction of movement. To solve such problems, models and even full scale sections were built in advance and studied carefully.

Some of the most difficult problems were encountered in making two major support plates for the reactor vessel. Made from 2-in. thick, type 347 stainless plates and spaced 14 in. apart, they both support and locate fuel and breeder blanket subassemblies, control rods, and a portion of the lower reactor vessel's thermal shield plates.

Vertical alignment of these two support plates, and of the nearly 1000 holes in each, had to be held within ±15 seconds. This is equiva-



PARTLY FINISHED: Ready for lifting, the upper reactor vessel and transfer rotor container assembly dwarfs workers on shop floor.



ALIGNMENT PROBLEM: Matching stainless steel support plates contain nearly 1000 holes each. Plates had to be parallel, and holes aligned.

lent to 0.0005 in. per in. deviation between the parallel plates.

Hold Tight Tolerances—Holes in each support plate were located from two center datum lines within a tolerance of ±0.005 in. Each hole, about two inches in diam, was machined to within 0.001 in. on the diameter. This work was done on a five-in. horizontal boring mill equipped so that the whole job could be done without moving the support plate from the machine.

For accurate machining, temperature-differential effects on the boring mill's vernier scales were compensated for. Compensation was also made for differential expansion of the carbon steel scales and the stainless steel support plates. As little as a 5°F temperature difference was enough to throw machined dimensions out of tolerance.

Machining speeds were also controlled carefully to avoid work hardening the support plates. And optical inspections of the machined plates took a full two weeks, using a clean room maintained at a constant 68°F.

Credit Optical Tools—Much of the credit for the accurate alignment and assembly of the finished vessel also goes to the use of optical tooling methods and equipment.

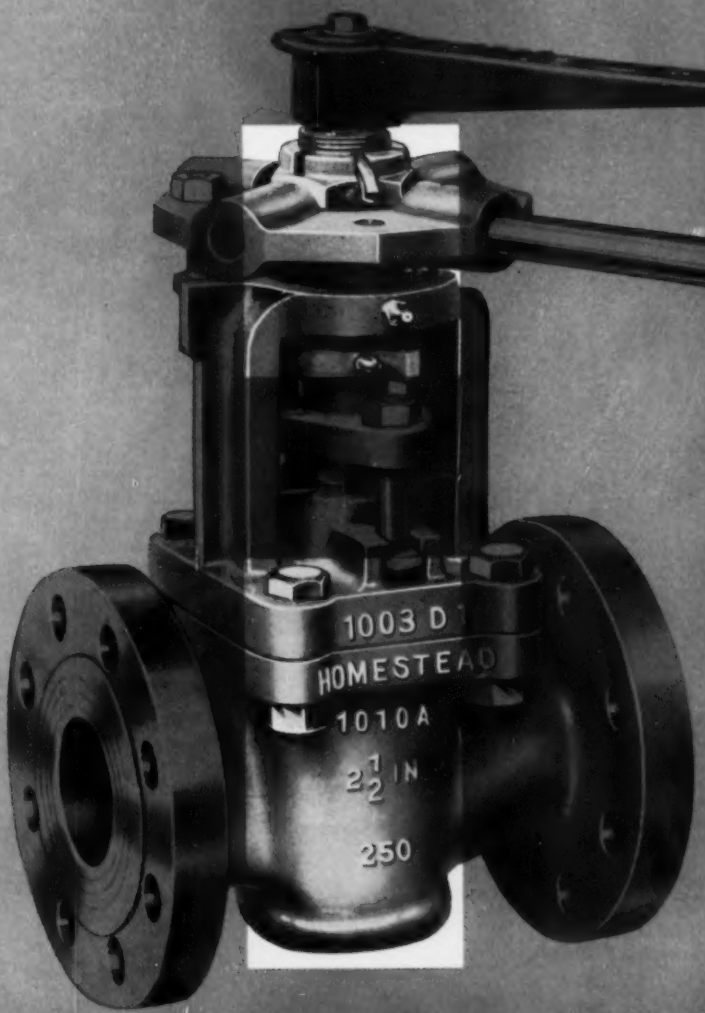
For example, dimension "X" in the accompanying sketch was required to be within ±0.0625 in. over a distance of 96.5 in., while dimension "Y" had to be within ±0.125 in. over a span of 355.75 in.

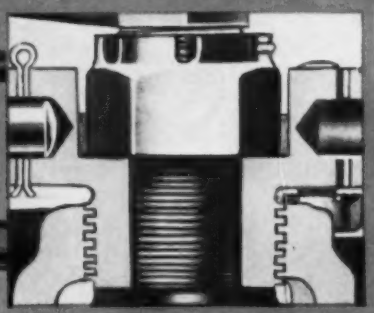
A final check on dimension "X" showed it to be within 1/32 in., or a deviation of only one part in 3088. Dimension "Y" checked out to within 1/16 in., a deviation of only one part in 5692. This accuracy was achieved in conjunction with another feat: maintaining parallelism between surfaces of components which were approximately 10 ft in diam.

The vessel is designed for 50 psi pressure at 1000°F at the outlet of the upper reactor vessel, and 110 psi inlet pressure at 650°F.

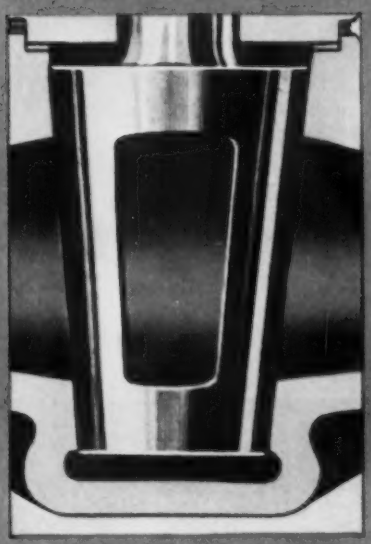
In the spots that count... Homestead® Valves are

STICK-PROOF





Built-in lever and screw affords instant operation



Seating pressure is mechanically relieved for easy turning

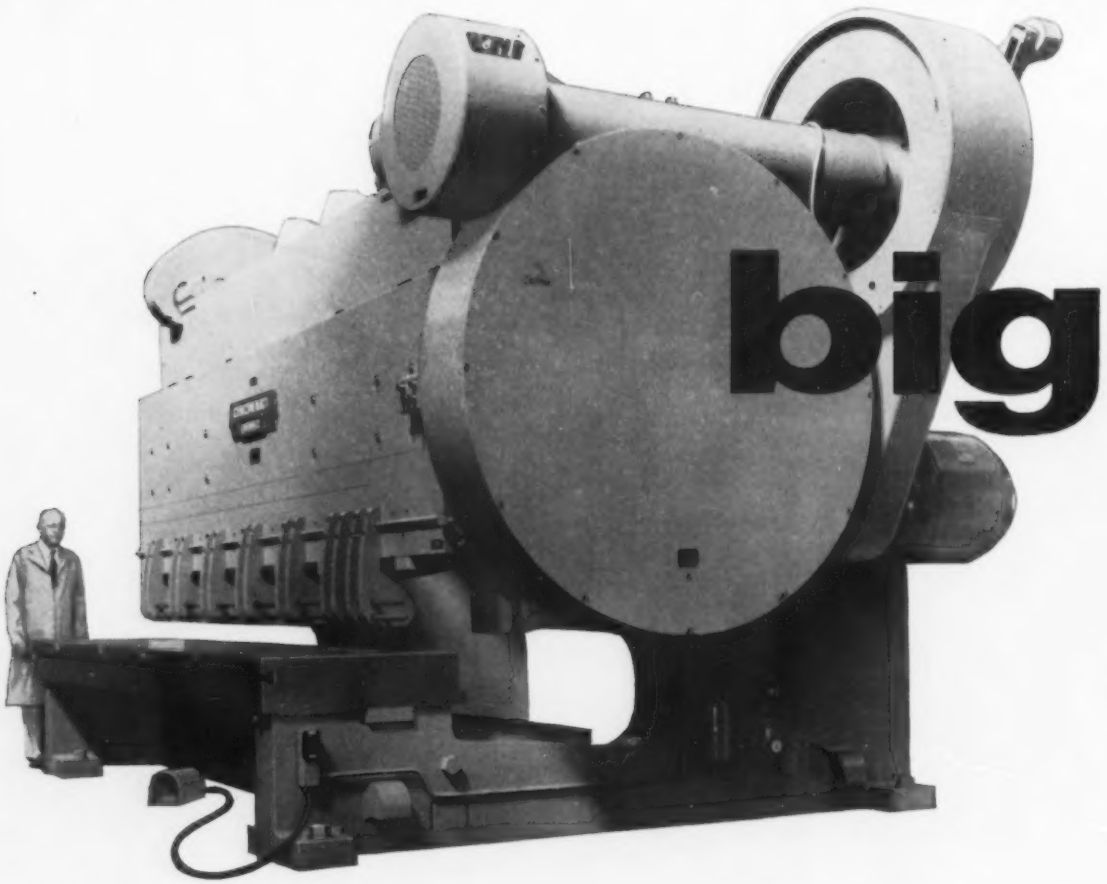
TROUBLE-FREE SERVICE is assured under all fluid, temperature and pressure conditions by the exclusive design of Homestead Lever-Seald Valves.

Instant stick-proof operation is guaranteed by a built-in lever and screw which mechanically relieves seating pressure. This controlled relief of pressure is only sufficient to overcome friction and to permit the plug to turn freely. What's more, all operating parts are protected from the damaging effects of corrosive or erosive service conditions and are completely weatherproof.

Write today for fully detailed Reference Book 39—Section 3. See for yourself how Homestead Lever-Seald Valves can solve your problems on high temperature, pressure or corrosive services.

h
v

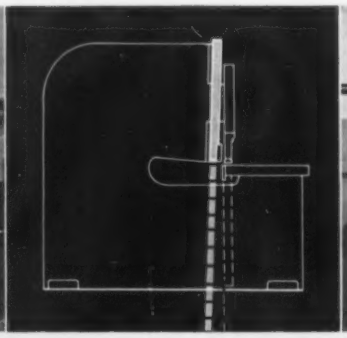
HOMESTEAD VALVE MANUFACTURING COMPANY
P. O. Box 23 Coraopolis, Pa.



Typical Cincinnati Shears: **big** series 15012, capacity 1½", 12'; **small** series 1004, capacity 3/16", 4'; **in between** series 1810, capacity ¼", 10'.

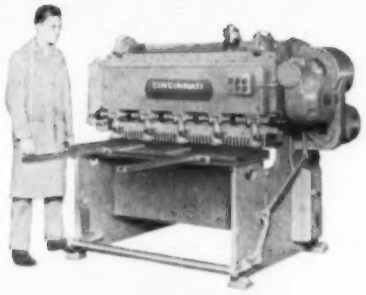
All steel, interlocked construction—no welds used as load supports

Hydraulic holddowns exert tons of pressure, insure accuracy

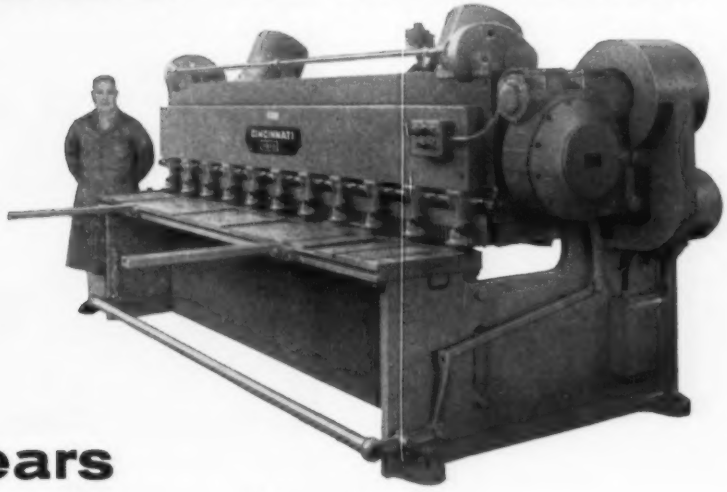


Non-float inclined ram maintains extremely accurate knife clearance

Front controlled power back gage is standard, accurate, convenient



small or in between



Cincinnati Shears give you every advantage

Simple operation, micrometer accuracy, cost-cutting speed, all-steel construction, and versatility—these are the advantages which make Cincinnati Shears earn their way in your plant.

And, whether you're shearing steel or plastics, nonferrous metals or asbestos, wire mesh, clad metals, or even radioactive material, the Cincinnati Shear line gives you a range of choices to fit your own requirements. Cincinnati Shears are in service cutting all of these materials.

Cincinnati ruggedness enables you to use one knife clearance for all thicknesses up to machine capacity.

Power operated back gages which are standard equipment, reduce non-productive time. Hydraulic holddowns provide tons of pressure, insure accuracy. The inclined ram permits the economy of four-edge knives, keeps work from binding between back gage and lower knife.

Since gap frames are standard, you can do notching, slitting or shearing work longer than the machine on any Cincinnati Shear to the limit of its gap.

Be sure to get the full Cincinnati story before you buy your next shear. Write Dept. B for Catalog S-7R.

Shapers / Shears / Press Brakes

THE CINCINNATI SHAPER CO.

Cincinnati 11, Ohio, U.S.A.

Clamp Trucks Double Warehouse Capacity

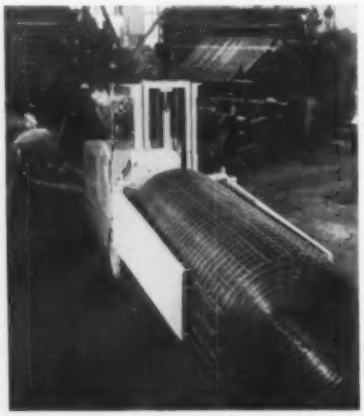
Seasonal sales can be costly when there's not enough warehouse space to take care of ups and downs.

Choice of handling equipment can solve this problem.

▪ In a major steel producer's wire department about 90,000 tons of welded wire fabric is produced annually. Until recently, warehouse space limitations required production gear itself to seasonal sales. This caused costly peaks and valleys in production schedules. Leveling off of these has been accomplished, and credit goes to two electric trucks equipped with clamps for handling wire coils.

The two clamp trucks are products of Elwell Parker Electric Co., Cleveland. They handle about 70 pct of the fence and electrically welded roll production in the department. Use of the trucks has doubled warehouse capacity. Heavy spring and summer orders are now anticipated in winter production.

Handle Wide Range — These trucks, with no modification or change of equipment necessary, handle a wide variety of coiled wire fabric and fencing for American Steel & Wire Div., U. S. Steel Corp., Donora, Pa. On one trip from the welded wire fabric machines to the warehouse, a truck may pick up a large 1900-lb coil of pipe fabric; on the next trip pick up eight coils of building wire fabric weighing 1225 lb.



Electric clamp truck handles wire coils in many sizes.

To increase the work range on these versatile trucks, shop management plans to add regular fork lift units to the trucks. Thus they'll also handle palletized small fence rolls. Clamps can be changed in favor of fork lifts in a simple operation requiring less than ten minutes.

Nonferrous

Self-lubricating bronze nut wears well, cuts waste

Many parts designers think of self-lubricating bronze as a bearing material only. So finds Amplex Div., Chrysler Corp., Detroit, a powdered metals producer. The firm indicates some design engineers overlook the material's low wear factor, easy machinability and relatively low cost. These assets, it points out, make self-lubricating bronze ideal for many applications.

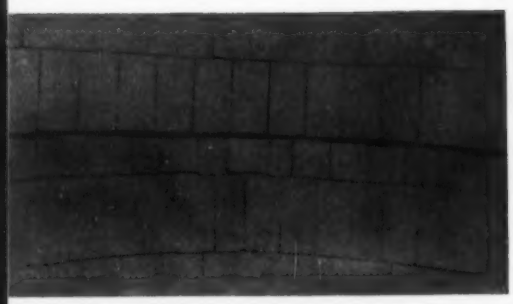
As an example, a maker of feed nuts for hospital beds uses the material. Tests show a previously used material wore out after only 2223 cycles of raising and lowering the beds. In contrast, self-lubricating bronze feed nuts show practically no wear after 44,000 cycles. Their inherent properties assure smoother,

Want More Data?

You may secure additional information on any item briefed in this section by using the reply card on page 101. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

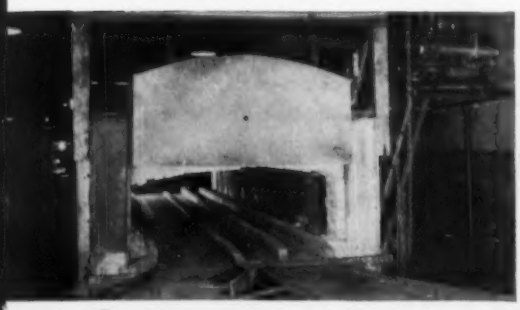
WE wouldn't be in business, if YOU couldn't

cut costs with these unusual refractories!



Ⓐ Nothing resists abrasion like an abrasive, such as silicon carbide. Here, for example, is a CARBOFRAX lining that outlasted hard-fired brick on the order of 3 years to 6 months. That's why so many operators are using CARBOFRAX linings in dust collectors, downcomers, coke chutes, and similar equipment exposed to severe wear.

Ⓑ Pictured here is the oil-fired furnace mentioned in the copy. It's used for working 450-lb. drill bits. The dull bits are heated in the right-hand opening to 2000 F, then dressed and returned to the left opening for tempering at 1450 F. At the time of this photo, our refractories had been used for well over 3000 hours—were still in good condition.



Ⓒ The three parts of this furnace that take the most abuse are each made of CARBORUNDUM's super refractories. The hearth and skid rails are silicon carbide. The piers are our electric furnace mullite—still going strong after five years. The skids, when pictured, had been in service three years with **no** replacement necessary.

Take advantage of the one *good* thing to come out of the recession: EXTRA TIME . . . time to look around . . . time to spot areas where better materials will give you better service—and help cut your operating costs.

For instance: Those "vulnerable" areas in your furnace—i.e. areas subjected to flame impingement or heavy loads, or exposed to abrasion or corrosion. Or other "working" areas where heat must pass *through* the refractory. In these spots, you may profit handsomely by substituting one of our special-purpose refractory materials. Materials designed *specifically* to meet these conditions.

Ⓐ **For example:** One customer replaced hard-burned, acid-proof brick in the vertical wall area of a cyclone dust collector with our CARBOFRAX® silicon carbide lining. After three years' service, the CARBOFRAX lining still shows practically no wear. Whereas before, the lining was badly cut out after only a few *weeks*. Quite a saving! . . . in materials, in labor, in downtime.

Ⓑ **For example:** In another furnace, 300-lb. annealing baskets and 50-lb. motor heads were pushed directly over a fireclay hearth. But maintenance costs were so high that a CARBOFRAX hearth was substituted. This not only solved the maintenance problem, but also transmitted the heat rapidly —and made possible *a saving of one third in fuel.*

Ⓒ **For example:** The sidewall, backwall and main arch of an oil-fired furnace were replaced with Carborundum's super refractories because the operator was getting only three months life. After the changeover, life increased 300%!

Granted, Carborundum's refractories cost more. But they also *save* much more—in terms of refractory life . . . furnace downtime . . . and maintenance costs. They also *do* more—in terms of higher furnace output . . . faster heat transfer . . . and increased efficiency. In short, *we* wouldn't be in business if *you* couldn't cut costs with super refractories.

Here's how you can start cutting costs:
It will take less than an hour to read these two booklets about the applications — and **properties** — of Carborundum's unique, new super refractories. Send for them today.

Subscription to "Refractories"
is yours for the asking. This technical brochure is published approximately every other month; contains a wealth of information on new refractory materials, lining techniques, etc. Offer limited, so write soon.

Refractories Division, The Carborundum Company, Perth Amboy, N. J., Dept. B-78.

CARBORUNDUM
Registered Trade Mark

quieter operation without lubrication maintenance.

Direct savings for the manufacturer come from elimination of need for machining, with resultant lack of scrap and waste.

Maintenance

Wiping cloths clean work and protect press beds

Industrial wiping towels protect press beds during setting up of work, cutting maintenance costs for a design, tooling and research firm.

Recognizing the need to keep beds mar-free and the time-saving

Wiping cloths protect press bed during setting of machine.

factor of having work near the machine during setup, Elco Corp. follows a special preventive maintenance procedure in its Philadelphia plant. In addition to using cloth towels for regular machine clean-up, it also employs wiping towels to protect the bed. Towels provide durable, soft, clean surfaces on which to rest work while the machine is being set.

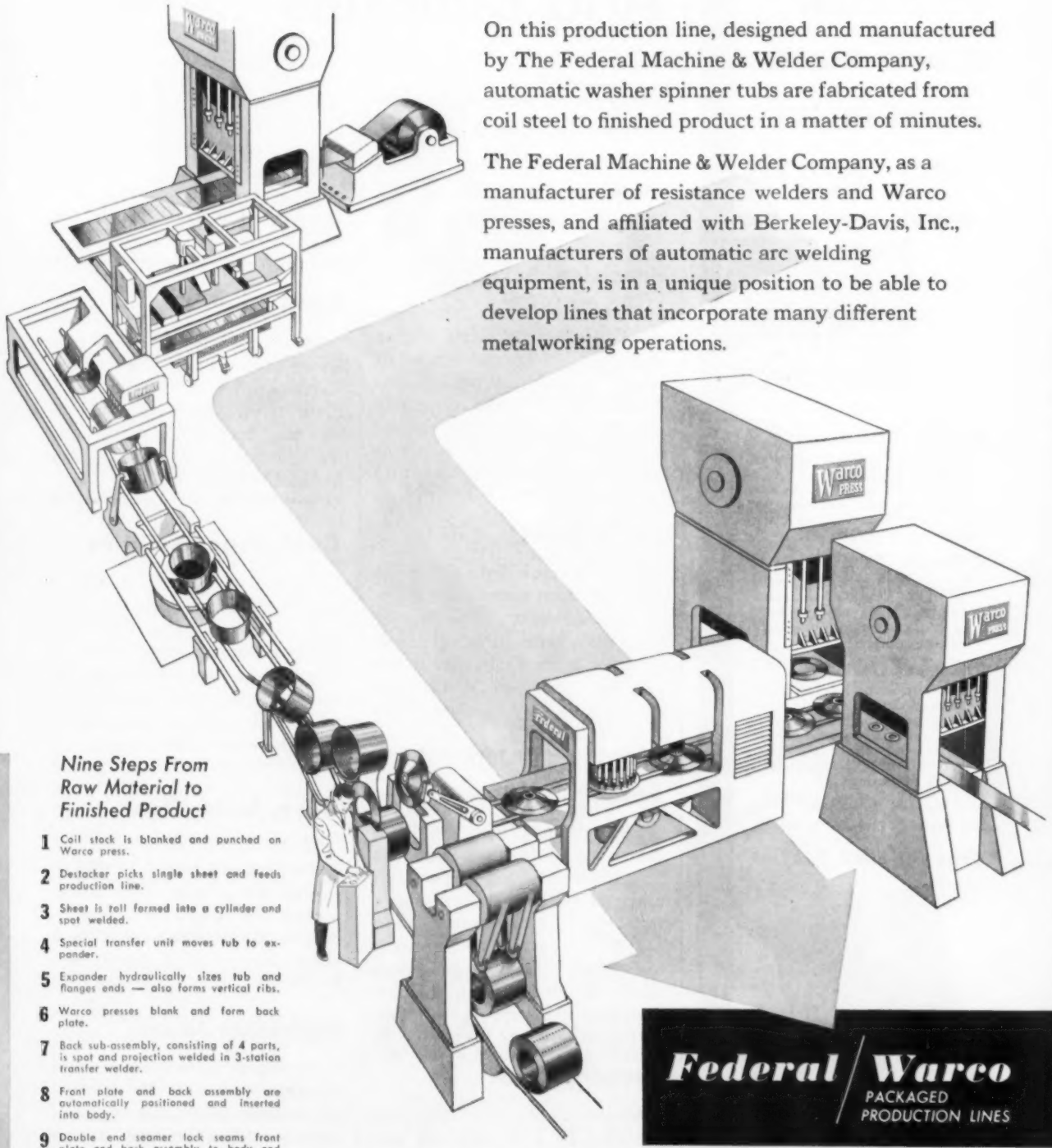
These towels also serve afterwards to protect finished small parts while they move through production channels in the shop. The towels are products of Industrial Wiping Cloth Co., Inc., Long Island City.

THE ACCENT IS ON PRODUCTION

in a production line by FEDERAL

On this production line, designed and manufactured by The Federal Machine & Welder Company, automatic washer spinner tubs are fabricated from coil steel to finished product in a matter of minutes.

The Federal Machine & Welder Company, as a manufacturer of resistance welders and Warco presses, and affiliated with Berkeley-Davis, Inc., manufacturers of automatic arc welding equipment, is in a unique position to be able to develop lines that incorporate many different metalworking operations.



Nine Steps From Raw Material to Finished Product

1. Coil stock is blanked and punched on Warco press.
2. Destacker picks single sheet and feeds production line.
3. Sheet is roll formed into a cylinder and spot welded.
4. Special transfer unit moves tub to expander.
5. Expander hydraulically sizes tub and flanges ends — also forms vertical ribs.
6. Warco presses blank and form back plate.
7. Back sub-assembly, consisting of 4 parts, is spot and projection welded in 3-station transfer welder.
8. Front plate and back assembly are automatically positioned and inserted into body.
9. Double end seamer lock seams front plate and back assembly to body and ejects finished tub.

* Sequence of operations controlled by static relay system designed and built by Federal.

Federal / Warco
PACKAGED PRODUCTION LINES

THE FEDERAL MACHINE AND WELDER COMPANY, WARREN, OHIO
Affiliated with Berkeley-Davis, Inc., Danville, Illinois

FREE TECHNICAL LITERATURE

New Catalogues And Bulletins

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, p. 101.

Precision Forgings

A 16-page brochure takes readers through a precision forging shop. It shows how one firm places accent on precision and quality. Actual scenes in the company's chemical and physical laboratory, and inspection departments are illustrated. (Billings and Spencer Co.)
For free copy circle No. 1 on postcard, p. 101

Chain Links

Data on repair links for chains and other chain assemblies are contained in a bulletin. These Accoloy body chain repair links, as strong as the chain itself, are trim in size and ideal for fast, safe and efficient chain hook-ups. (American Chain & Cable Co., Inc.)
For free copy circle No. 2 on postcard, p. 101

Solid Film Lube

Eight different solid film lubricants and their applications are analyzed in a catalog. These lubricants resist: high temperature (to 1500°F), low temperature (—300°F), corrosion resistance, high loads (225,000 psi), high speeds (to 30,000 rpm). (Electrofilm, Inc.)
For free copy circle No. 3 on postcard, p. 101

Foundry Work

Number 28 in a series of reviews published by a foundry and machine builder tells why castings of certain alloy have long lives. Cast of International Nickel Co.'s Ni-Resist, these vessels and components resist heat, corrosion and abrasion. (Kutztown Foundry & Machine Corp.)
For free copy circle No. 4 on postcard, p. 101

Steel Chain

Manganese steel chains are presented in a catalog. The 16-page literature covers a wide variety of chain types. These work-harden with use. Special lightweight rivetless and detachable chains are also included. (Taylor Wharton Co.)
For free copy circle No. 5 on postcard, p. 101

Centrifuge Facilities

Builders of a 50-ft, 84,000-lb centrifuge for testing human reactions to stresses of space flight have just issued a 32-page brochure. It describes the company's production equipment and some products for national defense and heavy industry. (McKiernan-Terry Corp.)
For free copy circle No. 6 on postcard, p. 101

Core, Mold Wash

Zircon wash for cores and molds is described in a folder. Developed for use with a cold-setting binder process, this material is said to reduce metal penetration and produce better castings. (G. E. Smith, Inc.)
For free copy circle No. 7 on postcard, p. 101

Expansion Joints

An 80-page catalog covers a line of expansion joints. The publication includes information for rating expansion joints subjected to axial

or lateral movement, angular rotation or combinations of these movements. It also contains formulae and tables for calculating forces and/or bending movements developed in the connected piping or equipment. (Badger Mfg. Co.)

For free copy circle No. 8 on postrard, p. 101

Insulation

Thermal, mechanical and physical, and chemical characteristics of one producer's industrial insulations are presented in a 20-page catalog. It includes data on high temperature spun-mineral wool insulating block, blankets, pipe coverings and cements and on mineral wool industrial felts and duct insulation. (Baldwin-Hill Co.)

For free copy circle No. 9 on postcard, p. 101

Reflow Oils

Economical, trouble-free bright flowing of electroplated tin is now possible with a new process, new literature states. The process employs a reflowing oil and an additive for effective maintenance of the bath. The bath doesn't thicken or polymerize with use. Thus it has long life. (Enthone, Inc.)

For free copy circle No. 10 on postcard, p. 101

Thread Pitch

In 16 pages, an interesting and informative work discusses measurement of screw thread pitch diameter. It analyzes answers to the question, "Does the three-wire system measure true pitch diameter?" Also reviewed is the effectiveness of certain contacting elements in gaging pitch diameter. (Johnson Gage Co.)

For free copy circle No. 11 on postcard, p. 101

Punches and Dies

Catalog sheets now available list one firm's large, planned stock of punches and dies to fit most punch presses. Charts and data tell how to figure clearances to allow for both type and thickness of material being punched. A new decimal die marking system is detailed that

Call your AIM*... Pacific States Cast Iron Pipe Co. does...

Acme Steel Strapping protects pipe shipments

Wayne Dabb works with Pacific States Cast Iron Pipe Co. to solve their product protection problems.

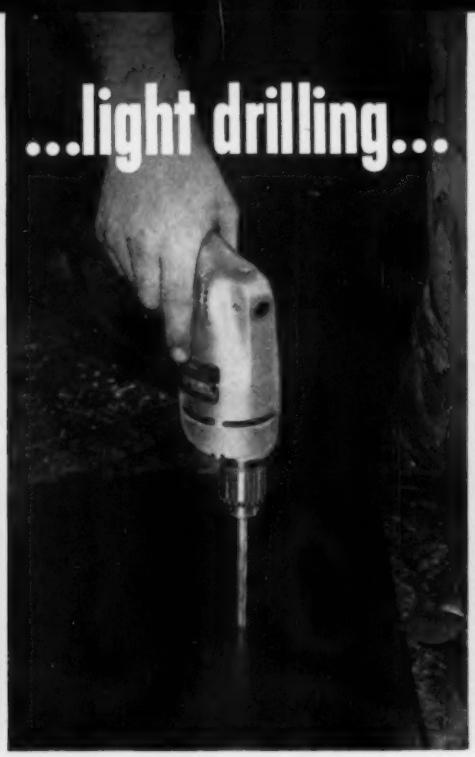
PACIFIC STATES CAST IRON PIPE CO., PROVO, UTAH, wanted to improve arrival condition of cast iron pressure pipe shipped in gondola cars. So they called in their Acme Idea Man.

Together, they arrived at a bracing method using heavy-duty Acme Steel Strapping that virtually eliminated in-transit damage (Idea No. U3-2). Lengths of lumber are placed on the sides and bottom of a gondola car and four lengths of strapping are laid in position. Pipe is loaded and strap is tensioned and sealed, resulting in two secure units.

Now pipe arrives in damage-free condition and is faster to unload since orderly lading presents no unusual materials handling problems or hazards for consignee personnel.

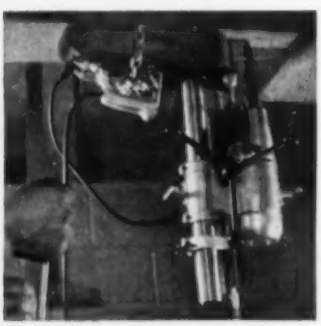
***Call your Acme Idea Man.** He has scores of time-saving, product-protecting ideas, many of which may help you. Write Dept. IFU-78, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois. In Canada, Acme Steel Company of Canada, Ltd., 743 Warden Ave., Toronto 13, Ontario.

ACME STEEL **STEEL STRAPPING**



There's a Black & Decker Drill powered for every job!

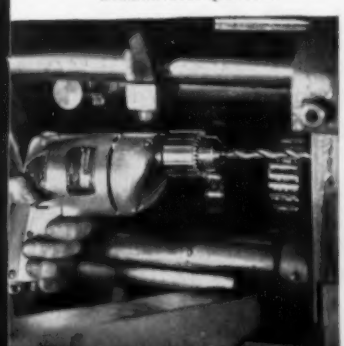
LITTLE SHORTY's the drill you want for those hard-to-get-to, around-corner jobs. Gets in tight spots! Excellent for small unit assembly.

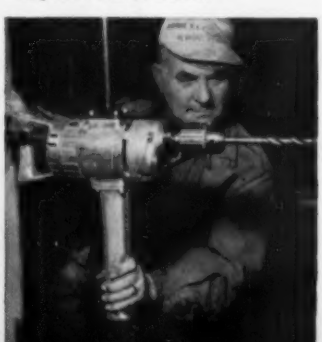


DRILLS UPSIDE DOWN! B&D Magnetic Drill Press sticks to the wall like a fly; operates manually or with exclusive remote control.

TREMENDOUS TORQUE for the tough jobs. ½" H.D. Holgun® is geared and powered to take on the hard ones. Compact to work in close quarters.

MOST POWERFUL drill of its size available, the ¾" Standard! A rugged tool with plenty of zip in reserve. Fully reversible; positive drive clutch.





71% of purchasing agents say make mine Black & Decker!

A recent industrial publishing company survey reveals that when purchasing agents need electric tools most think first of Black & Decker! One reason why: 33 *different* drills each designed to give you the power you need *plus* easy handling and long, troublefree life!

If you have a drill problem—a small hole in trim to a large hole up among the structural steel—be sure to see Black & Decker. Better still, mail the coupon for a free demonstration of our drill line. THE BLACK & DECKER MFG. CO., Dept. 0907, Towson 4, Maryland. (In Canada: P. O. Box 278, Brockville, Ontario).

Look Under "TOOLS-ELECTRIC" in Yellow Pages

Leading Distributors Everywhere Sell

Black & Decker®

Quality Electric Tools . . . Power-built for top performance

MAIL COUPON FOR FREE DEMONSTRATION

THE BLACK & DECKER MFG. CO., Dept. 0907, Towson 4, Md.

☐ Please arrange for a demonstration of the following drill(s) .....

☐ Please send me additional information.

Name..... Title .....

Company.....

Address.....

City..... Zone..... State.....

FREE LITERATURE

eases selection of dies with proper clearance. (T. H. Lewthwaite Machine Co.)

For free copy circle No. 12 on postcard, p. 101

Micro Switch

Precision lighted pushbutton switches are outlined in eight pages of data. Short-stroke momentary, long-stroke momentary, alternate-action, two position alternate-action, magnetically held and turn-to-hold switches are described. (Micro Switch Div., Minneapolis-Honeywell Regulator Co.)

For free copy circle No. 13 on postcard, p. 101

Air Valves

In its 108 pages a catalog covers: 4-way valves and manifolds; 2-and 3-way line valves; manual valves and manifolds; pilot and special valves. (Numatics, Inc.)

For free copy circle No. 14 on postcard, p. 101

Fork Truck

Features of a 2000-lb capacity gas-powered fork truck appear in a 6-page brochure. (Clark Equipment Co.)

For free copy circle No. 15 on postcard, p. 101

Building-block Tools

Tracer-controlled milling units are described in a 6-page bulletin. It gives considerable data on these basic "building-block" machines. They can be mounted, fixtured and operated in any plane. (Colonial Broach and Machine Co.)

For free copy circle No. 16 on postcard, p. 101

Vacuum Arc Furnace

Vacuum arc furnaces described in new literature provide fast, economical, pilot plant or small-scale pure melts of metals and alloys with high melting temperatures. Rated at 3000-amp maximum, furnaces handle melts from buttons to ingots, up to 40 lb of titanium or 70 of steel. (Rochester Div., Consolidated Electrodynamics Corp.)

For free copy circle No. 17 on postcard, p. 101

There is no substitute for stainless steel
in homes and home products

For the lady in the kitchen or the "chef" at the outdoor grill, there is nothing like the gleaming efficiency of Stainless Steel. Everything made of Stainless Steel has lasting beauty and is so easy to keep clean. No other metal contributes so much to better living.

Specify McLouth high quality sheet and strip Stainless Steel. McLouth Steel Corporation, Detroit 17, Michigan.

McLOUTH STAINLESS STEEL

HELIARC Welding
breaks the light-gage metal barrier

Welding stainless steel sheet into a smooth, streamlined shape for jet plane fuel tanks is a production job for HELIARC Welding. This method, utilizing a tungsten electrode shielded by LINDE Argon, was developed by LINDE especially for use on hard-to-weld commercial metals.

HELIARC Welding can be used either automatically or manually, in all manual welding positions. LINDE Argon in bulk or in cylinders—99.99% pure—protects the weld. Since no flux is required, joints are clean and smooth, without spatter saving you time and money.

Get more information about HELIARC Welding. For a free copy of the booklet, "Modern Methods of Joining Metals," write Dept. I-73, LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y. Offices in other principal cities. *In Canada:* Linde Company, Division of Union Carbide Canada Limited.

Fuel tanks for jet planes, made of thin stainless steel, are quickly assembled with smooth, clean and sound seams by HELIARC Welding, a LINDE development.

FOR THE BEST IN ELECTRIC WELDING—LOOK TO LINDE!

Linde TRADE-MARK
UNION CARBIDE

The terms "Linde," "Heliarc," and "Union Carbide" are registered trade-marks of Union Carbide Corporation.

FREE LITERATURE

Continued

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just circle the number and mail the postcard.

Socket Set Screws

Two assortments of cup point socket set screws and keys are announced in a bulletin. The assortments are designed for general plant maintenance, tool and die shops, and appliance servicing. (The Bristol Co.)

For free copy circle No. 21 on postcard

Mine-car Batteries

Slyver-clad batteries for mine locomotives, shuttle cars, etc. are described in a 4-page folder. Slyver is parallel glass fibers which hold active material in place. (C & D Batteries, Inc.)

For free copy circle No. 22 on postcard

Circular Tools

Prices on standard circular form tools and blanks appear in a company's catalog. It lists over 1500 items, including blanks, plain cut-off tools and cut-off and chamfer tools. (Somma Tool Co.)

For free copy circle No. 23 on postcard

Wire, Rod, Strip

Summarizing recent price changes in wire, rod and strip, a 4-page bulletin aims mainly at purchasing agents. It lists information on Monel, Nickel, Inconel, Inconel "X," Ni-Span-C and stainless steels. (Techalloy Co.)

For free copy circle No. 24 on postcard

Machine Mount

Wedge-type mounts are introduced in a 4-page folder. For machine and tool installation, the mount comes in various sizes. It boasts instant precision leveling, plus patented air-locking pads top and bottom to hold machines to floors of all types. (Clark, Cutler, McDermot Co.)

For free copy circle No. 25 on postcard

Heat Treat Unit

Vacuum heat treating furnaces reviewed in a 4-page folder serve a temperature range from 600 to 2150°F. Vacuum is usually 0.1 micron; others are optional. The units' low voltage heating elements provide many distinct design and operational features. (C. I. Hayes, Inc.)

For free copy circle No. 26 on postcard

Industrial Rubber

Comprehensive in scope, a 72-page catalog includes data on industrial rubber products used in many industries. It covers 32 types of hose, 8 types of conveyor belting, 6 types of packing, plastic pipe, and couplings. (Acme Rubber Mfg. Co.)

For free copy circle No. 27 on postcard

Air Gaging

How to use one maker's air gaging cartridges, in single and multiple dimension gages and inspection fixtures is described in a 32-page publication. (For free copy, write on company letterhead to Sheffield Corp., Dayton 1, Ohio.)

Conveyors

Rugged, lightweight aluminum wheel and roller conveyors are featured in a catalog sheet. Easy to use and easy to move, aluminum conveyor sections utilize portable stands as coupling elements. This eliminates end-for-end handling and assures in-line setup every time. (E. W. Buschman Co.)

For free copy circle No. 28 on postcard

Research, Development

One of the most comprehensive booklets of its type lists names and

Postcard valid 8 weeks only. After that use own letterhead fully describing item wanted. **7/17/58**

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No postage necessary if mailed in the United States

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FREE LITERATURE

addresses of practically all research and development facilities located within a given area. The booklet also compiles data on research and engineering educational institutions in the area. It points out that when a new plant site is being considered, it's important to see that such facilities are nearby. (Penna. Power & Light Co.)

For free copy circle No. 29 on postcard

Nylon Molding

Literature outlines design, tooling and production services offered by a nylon custom-molding firm. It Possible products range from simple explains that the company performs mass production at modest costs. washers to fine-pitch, 45° helical gears molded integrally with a worm and clutch for precision instruments. (Nylomatic Corp.)

For free copy circle No. 30 on postcard

Magnesium Oxide

Properties of electrical-grade fused magnesium oxide are discussed in a bulletin. This material, in grain form, is used in kitchen range surface units, immersion heaters, etc., because it has excellent electrical resistance combined with high heat conductivity. (Norton Co.)

For free copy circle No. 31 on postcard

Plastic Components

Semi-finished polyethylene components covered in a catalog are of branch and linear polyethylene and polyvinyl chloride. Specified in the literature are sheet, rod, block and bars; all are stock items, available for immediate shipment. (American Agile Corp.)

For free copy circle No. 32 on postcard

X-ray Quality Control

Literature describes a new X-ray fluorescence instrument. It's designed for continuous stream monitoring of a solid, liquid or powder directly on the production line. Fields of application for this continuous type of analysis are wide, embracing metals, ores, slags, cements, glasses, pigments, catalysts, and all kinds of coatings. (Applied Research Laboratories, Inc.)

For free copy circle No. 33 on postcard

Rubber Products

Rubber products for construction jobs appear in an 8-page catalog. It covers 26 types of hose and 4 types of conveyor belting. (Hamilton Rubber Mfg. Corp.)

For free copy circle No. 34 on postcard

Tracer Lathes

Automatic tracer lathes featured in a new bulletin combine rough and finish turning operations on a single machine. (Seneca Falls Machine Co.)

For free copy circle No. 35 on postcard

Mist Coolant

Mist coolant system, engineered for use with all machine tools, are described in a 4-page bulletin. It shows how you can improve cooling efficiency and work finish and increase tool life in boring, grinding, milling, tapping, sawing and turning operations. (Bijur Lubricating Corp.)

For free copy circle No. 36 on postcard

Closed-cell Rubber

Nitrogen-filled closed cellular rubber is analyzed in an 8-page brochure. It cites performance and cost advantages of the material for use in sealing, gasketing, cushioning, vibration isolation or packaging. (Rubatex Div., Great American Industries, Inc.)

For free copy circle No. 37 on postcard

Safety Goggles

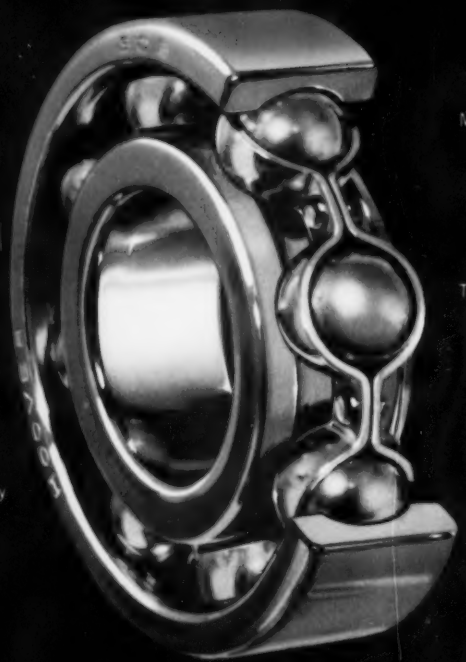
New safety goggles for protection against splash, spray and impact exposures are announced in a data sheet. The goggles are indirectly ventilated. There are no vents in the frame or holes in the lens. (American Optical Co.)

For free copy circle No. 38 on postcard

so quiet...

Just one of the reasons these electric motor manufacturers use Hoover Quality Ball Bearings

Allis-Chalmers Manufacturing Company
The Louis Allis Co.
Baldor Electric Company
The Brown-Brockmeyer Company
Century Electric Company
Cleveland Electric Motor Company
Continental Electric Co., Inc.
Diehl Manufacturing Co.
Doerr Electric Corporation
Electro Dynamic
Electric Machinery Mfg. Co.
Elliott Company
Emerald Motor & Mfg. Co.
Emerson Electric Mfg. Co.
Fairbanks, Morse & Co.
General Electric Company
Howell Electric Motors Company
The Ideal Electric and Manufacturing Company
The Imperial Electric Company
Iron Fireman Manufacturing Co.
Jack & Heintz, Inc.
Kingston Conley Incorporated
The Leland Electric Co.

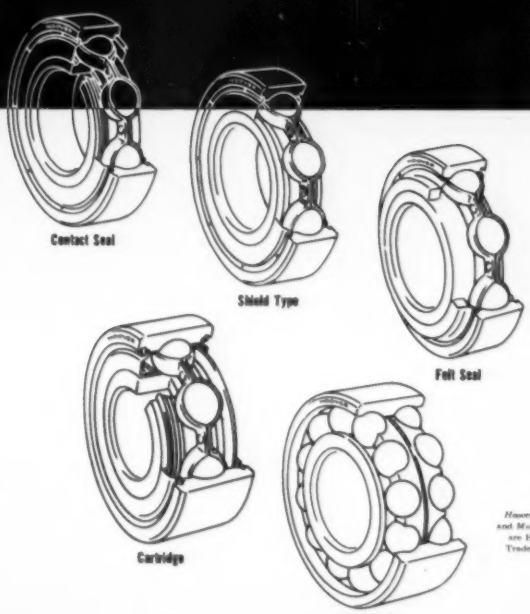


The Lima Electric Motor Co., Inc.
The Lincoln Electric Company
Marathon Electric Manufacturing Corporation
Marble-Card Electric Corporation
The Master Electric Company
Oak Electric Motors, Inc.
Packard Electric Division
The Peerless Electric Company
The Piqua Machine & Manufacturing Co.
The Reliance Electric & Engineering Company
Robbins & Myers, Inc.
Reuland Electric Company
The Springfield Electric Motor Co.
Star Kimble
Sterling Electric Motors, Inc.
Valley Electric Corporation
Wagner Electric Corporation
The B. A. Wesche Electric Company
Bogue Electric of Canada, Ltd.
American Electric Motors
A. O. Smith Corporation
Oster Manufacturing Company
Dayton Electric Service Co.

Constantly sought by manufacturers and users is velvet smooth operation of electric motors that whispers "*superb quality.*"

In many leading makes of motors, as well as other products, hushed quietness is assured through the use of Hoover Quality Ball Bearings. Precision made with super smooth *Hoover Honed* Raceways and perfectly matched *Micro-Velvet* Balls, Hoover Ball Bearings are exceptionally quiet, exceptionally dependable, exceptionally long lived.

You, too, can put these Hoover advantages to work . . . in the products you build, in the equipment you operate.



Hoover Honed and *Micro-Velvet* are Hoover Trademarks.

hoover

BALL AND BEARING COMPANY

ANN ARBOR, MICHIGAN

Los Angeles Sales Office and Warehouse: 2020 South Figueroa, Los Angeles 7, California

Please send the literature checked:

Bulletin 100—Lubricated-for-life ball bearings with seals of TEFLON*.

Hoover Hand-Book of Anti-Friction Bearings which outlines bearing types, problems, applications.

Bulletin 101—Hoover *Micro-Velvet* Balls of chrome steel, stainless steel, brass, bronze, monel.

*TEFLON is a Du Pont Trademark.

Bulletin 100

Hand-Book

Bulletin 101

Hoover Ball and Bearing Company
Ann Arbor, Michigan

Name_____
Title_____
Company_____
Address_____
City_____ State_____

Bridgeport Brass chooses SPEEDOMAX® H CONTROL for vacuum annealing Ti, Zr and special alloys

Bridgeport, Conn.—Vacuum anneal . . . cool . . . then draw! Again and again . . . until the seamless tube of titanium, zirconium or special alloys takes final dimensions.

That's the procedure at Bridgeport Brass Company's Housatonic Plant where reliable Speedomax H temperature control is helping them produce tube after tube of the same high quality.

Quantity production of these tubes requires close control of all variables, particularly atmosphere and temperature.

To minimize loss of the expensive "new" metals and to maintain chemical and physical characteristics, Bridgeport Brass Co. installed a HIVAC vacuum annealing furnace with a Westinghouse heating chamber over a year ago. With evacuation held to 0.01 micron, four Speedomax H instruments provide D.A.T. control . . . constantly regulate power input to hold product temperature well within specifications. Such dependable automatic control is resulting in production savings which make the use of these new metals more economical.

You may not be vacuum annealing . . . but no matter what your heat treat, it'll pay you to investigate Speedomax H. Its workhorse characteristics . . . its two to four week delivery . . . and its moderate price now, more than ever before, make this null-balance controller an attractive investment.

A phone call or letter to your nearest L&N office or to 4956 Stenton Ave., Phila. 44, Pa. will bring more information. Ask for data sheets.

LEEDS [N] NORTHRUP
Instruments Automatic Controls • Furnaces

A clad "sandwich" being assembled prior to hot rolling. Claymont Stainless-Clad Plates—5 to 50% stainless inseparably bonded to carbon steel backing—offer the corrosion and abrasion protection of stainless steel plus the economy of carbon steel. This is another of the many steel plate products available from Claymont's integrated mill.

by d'Arazien

CLAYMONT
STAINLESS-CLAD PLATES

CF&I

CHECK CLAYMONT FOR—Alloy Steel Plates · Carbon Steel Plates · Stainless-Clad Steel Plates · High Strength Low Alloy Steel Plates · CF&I Lectro-Clad Nickel Plated Steel Plates · Pressed and Spun Steel Heads · Manhole Fittings and Covers · Fabricated Steel Products · Large Diameter Welded Steel Pipe

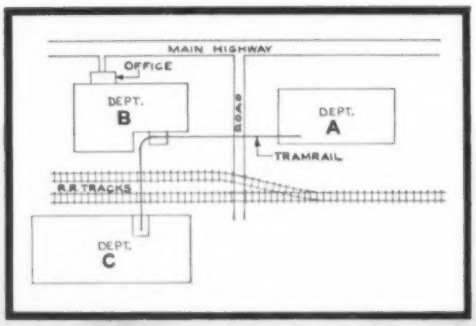
PRODUCTS OF WICKWIRE SPENCER STEEL DIVISION · THE COLORADO FUEL AND IRON CORPORATION

Plant at Claymont, Delaware · Sales Offices in all Key Cities

5788

Automatic Handling Between Three Buildings

Operation Costs Plunge Because of Time Saved



Photograph shows van being lowered to outside dock. It remains here until unloaded or loaded and dispatched.

AN automatic Cleveland Tramrail materials handling system operates over a street and railroad to serve three separate buildings. It carries materials back and forth between the plants without need of especially assigned operators. The dispatching of materials is easily handled by men in the buildings along with their other work, since it is only necessary to press a push button to send a Tramrail carrier on its way.

The Tramrail carrier travels up and down grades because the buildings are at different elevations. When it reaches its destination, it lowers at once, automatically. A warning bell sounds as it descends.

Because of the time savings and elimination of need of many powered floor trucks and their expensive maintenance, cost of handling materials between the buildings is very low.

Cleveland Tramrail has engineered a wide variety of automatic materials handling systems. We stand ready to share with you the benefit of our experience.

Loading a Tramrail carrier van with four floor trucks. Each has a load of 250 lbs. Depressing the proper button on the wall sends the van to either of the other two buildings.

Write for free "Automatic Handling" booklet.

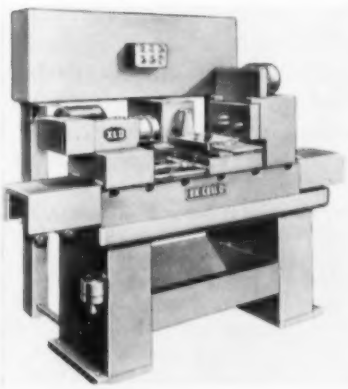
CLEVELAND TRAMRAIL

Overhead Materials Handling Equipment

CLEVELAND TRAMRAIL DIVISION • THE CLEVELAND CRANE & ENGINEERING CO. • 4836 E. 290 ST. • WICKLIFFE, OHIO

New Production Ideas

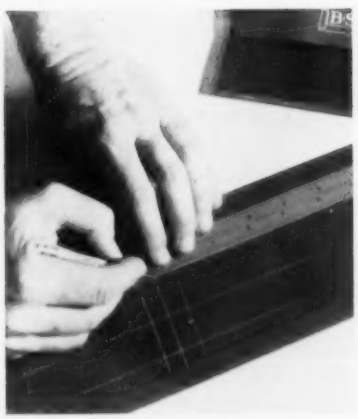
Equipment, Methods and Services



Borers Make One or Many Holes in One Pass

Two new precision boring machines, though small in size, can bore several holes with little more effort than it takes to make one. Although these relatively small machines are primarily for instrument and missile component uses, they can be used in any shop where very small, accurate holes must be bored. Many small gear cases and similar items requiring accurate holes held close to center distances have previously been bored one at a time. Now, with a custom made multi-boring plate, fitted with precision miniature spindles, such holes can be bored in one pass on a high production basis. What's more, accuracy is the same as with conventional single-hole boring methods. The machine table operates pneumatically with hydraulic feed control. (Ex-Cell-O Corp.)

For more data circle No. 50 on postcard, p. 101



Precision-Ground Tool Steel Is Pre-blued

Pre-colored a dark blue, a new precision-ground tool steel is ready for marking and permanently identified by its color. It is rust resistant with no greasing or degreasing required. The steel has excellent machinability and is easy to harden. Its colored finish does not affect its heat treatment and the heat treatment eliminates the color. The material is a non-deforming manganese, chromium, tungsten electric furnace steel with a hardness range of 170-207 Bhn. Tolerances are as follows: thickness within $\pm$ 0.001 in.; width 1 in. and under, standard to + 0.005 in.; above 1 in.; standard to +0.010 in. Surface finish is 35 rms or better. The pre-colored material is packaged in envelopes (large sizes in cartons) with complete heat treating instructions. (Browne & Sharpe Mfg. Co.)

For more data circle No. 51 on postcard, p. 101

Production Unit Tests Small Ferrous Parts

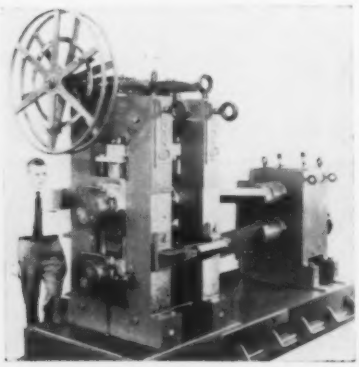
Employing the wet magnetic particle inspection method, either visible or fluorescent, a new testing unit provides a rapid means for production testing of small ferrous parts up to 24 in. long. The unit's suspended magnetizing coil and heads permit conveying of parts either through or across the unit. The coil which pivots and slides along an overhead track may be positioned between the heads for both longitudinal and circular magnetization of parts. It is moved to the right for separate coil magnetization, or stored to the extreme left when not in use. Stainless steel tanks accommodate either oil or water suspendible magnetic particle baths. The unit operates from 220/440 v, 50/60 cycle, 3-phase current. The direct-current magnetizing output is 1750 amp through the heads and 6000 ampere turns through the coil. (Magnaflux Corp.)

For more data circle No. 52 on postcard, p. 101

Low-Cost Converter Powers Induction Furnaces

A new type of frequency converter is characterized by low initial cost, high operating efficiency and low maintenance. The unit, an ideal power supply for many types of induction heating and melting equipment, contains no rotating parts. Enclosed in a self-contained cubicle, the converter is easily installed in any convenient location to minimize floor space requirements and installation costs. Typical use takes three-phase power at 60 cycles directly from regular or primary sources and converts it to single-phase power carrier from converter to furnace by conventional wiring. Output can be varied continuously and under load from zero to maximum with easy-to-use controls. The unit cannot be damaged by overload. Even inexperienced hands can quickly become proficient operators. Both initial cost and operating cost are lower than equivalent size motor generator type units. (Ajax Electrothermic Corp.)

For more data circle No. 53 on postcard, p. 101



Mill Rolls Both Powdered Metal and Strip

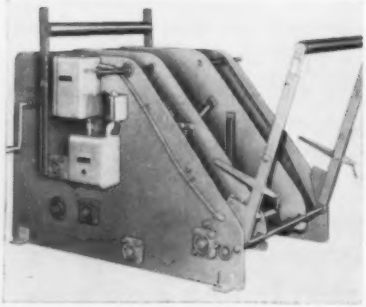
Used as a vertical mill, a new unit rolls powdered metals. It then converts to a standard horizontal mill for rolling strip. The conversion is made by a simple movement of pinion stand and roll housing. According to the manufacturer, the inherent design of its line of rolling mills permits all sizes to be supplied with the convertible feature, an important consideration wherever rolling operations involve both powder and standard strip rolling in ferrous and nonferrous metals. The mill shown is a two-high/four-high combination mill with 12-in. rolls and 40-hp variable speed alternating current drive. It's ideal for application wherever space and capital are limited, or extreme flexibility is required. (The Fenn Mfg. Co.)

For more data circle No. 54 on postcard, p. 101

New Globe Valve Reduces Pressure Drop

Intended for use where droptight shutoff is required and where pressure drop is important, a new valve reduces the pressure drop ordinarily associated wtih globe valves to the point where the advantage of droptightness and repairability often outweighs any consideration of pressure drop. The new unit is available in 1500- and 2500-lb classes from 10- to 18-in. sizes. It's intended primarily for steam generating plants rated 500,000 lb per hour and larger, although there are other applications. Chiefly responsible for the low pressure drop are the internal contours of the flow passages. (Edward Valves, Inc.)

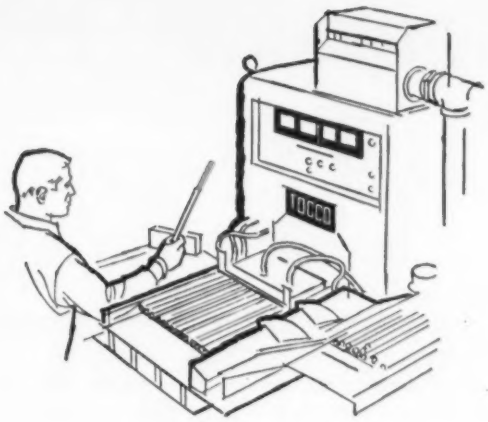
For more data circle No. 55 on postcard, p. 101



Coil Handling Unit Features Increased Capacity

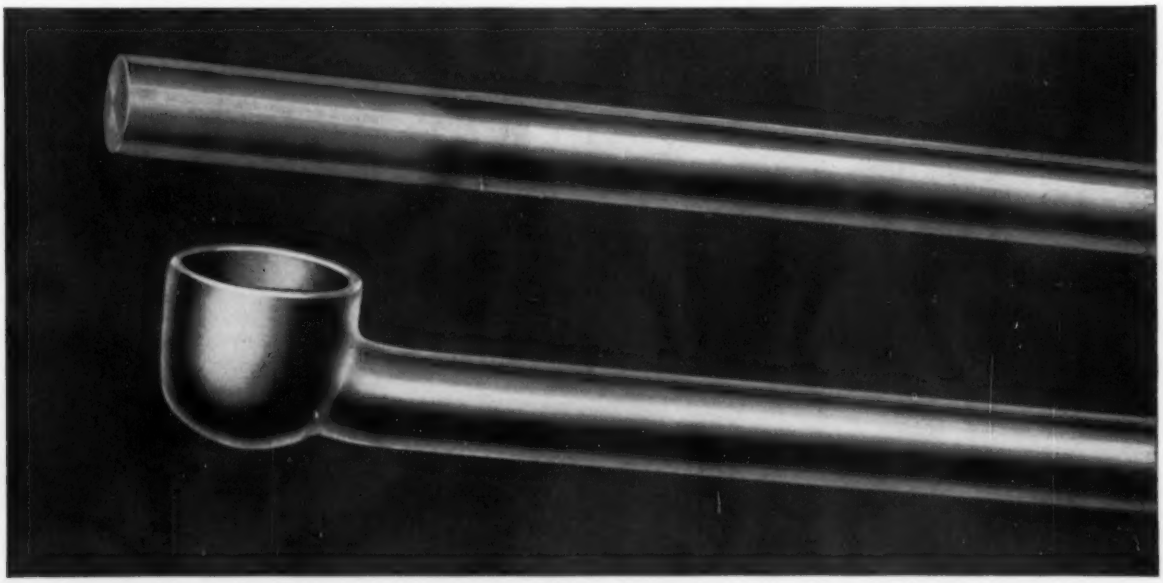
While width capacity has been increased between guide plates of a redesigned coil handling unit, the over-all outside dimensions have been reduced. A three-point suspension establishes a plane and prevents side deflection of plates when guiding heavy plates. Because of the increased weight capacity, a new bearing support has been developed for the four power-driven rolls. The hardened steel rolls can easily be pulled from the frame by removing a bearing cap from one side. Units are available in a range of coil weights up to 20,000 lb in widths up to 50 in. (Benchmaster Mfg. Co.)

For more data circle No. 56 on postcard, p. 101



Heating Costs *Cut In Half*

with TOCCO* *Induction Heating*



Engineers at Thompson Products Inc.'s Michigan Division recently changed from gas-fired furnaces to fully automatic TOCCO. Application: heating for forging of automotive tie rods. Result: a substantial reduction in direct labor costs, saving thousands of dollars a year on this heating for forging operation. *Annual savings actually amortize the cost of the TOCCO installation in about one year.*

The automotive tie rod shown here is only one of over 500 parts heated for forging in Thompson's new, modern forge plant. *Every one of these parts is heated with TOCCO equipment.*

If *your* manufacturing operations require heating for forging, heat treating, brazing, soldering or melting, it will pay you to investigate TOCCO as a sound method of increasing production and lowering costs.

THE OHIO CRANKSHAFT COMPANY

Mail Coupon Today— NEW FREE Bulletin

The Ohio Crankshaft Co. • Dept. A-7, Cleveland 5, Ohio

Please send copy of "Typical Results of TOCCO Induction Heating for Forging and Forming".

Name_____

Position_____

Company_____

Address_____

City_____ Zone____ State_____

Why automotive manufacturers prefer N-A-X® FINEGRAIN STEEL for bumpers

WIDE RANGE OF SHAPES AND CONTOURS
The complexity of today's automotive bumpers demands a steel that provides maximum strength plus unlimited shape and contour possibilities.

FLAT POLISHES TO A HIGH LUSTER
The hardness and fine grain of N-A-X FINEGRAIN renders this steel capable of assuming a high degree of luster at minimum cost.

REDUCES POLISHING COSTS
Bumpers made of polished N-A-X FINEGRAIN suffer no surface disturbances due to coarse grain or strain caused by the drawing process. Preparation costs before plating are thereby reduced.

LESS OVERHANG WEIGHT
Generally, the most difficult bumpers can be made of N-A-X FINEGRAIN with a minimum of 25% increased yield strength over mild carbon steel. This makes possible greater resistance to indentation and substantially decreased overhang weight.

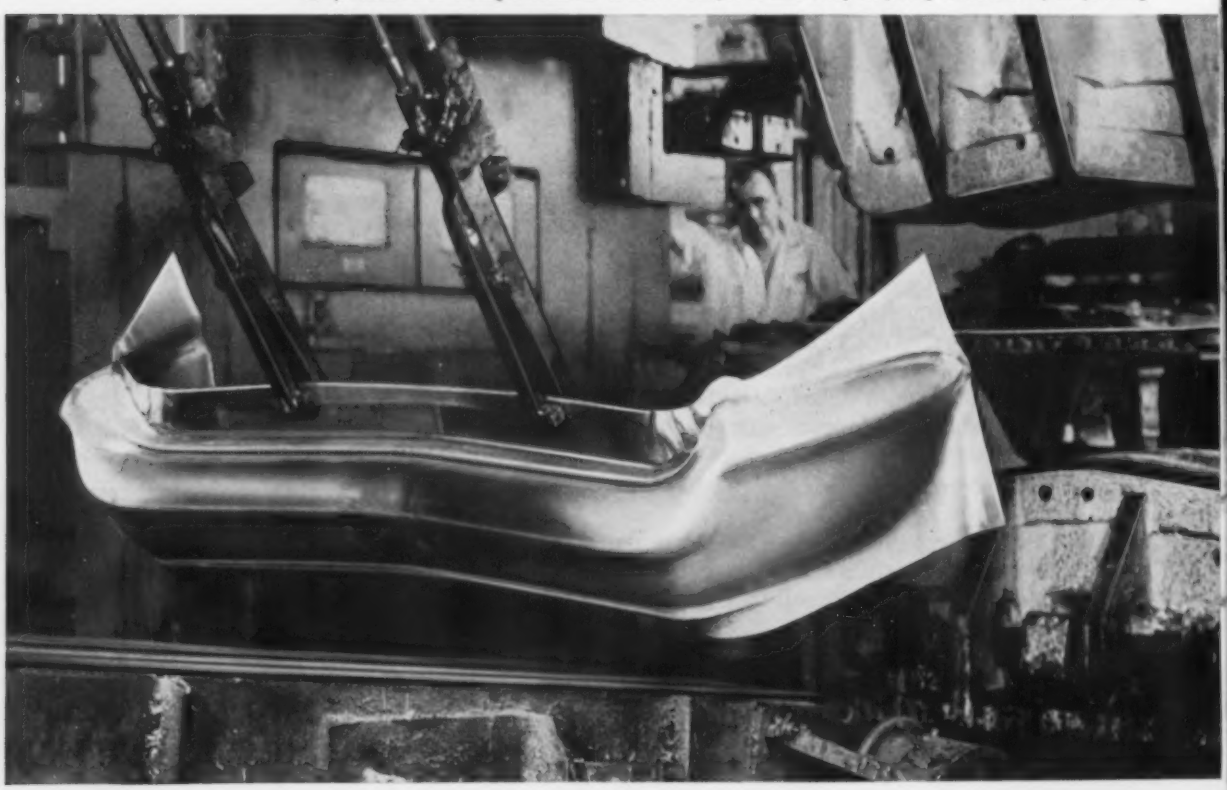
No wonder automotive manufacturers prefer dependable N-A-X FINEGRAIN for the difficult jobs.

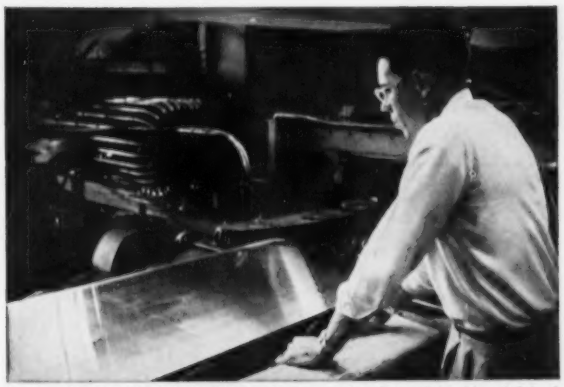
CHECK THESE IMPORTANT ADVANTAGES FOR YOUR JOB:
N-A-X HIGH-STRENGTH steels—both N-A-X HIGH-TENSILE and N-A-X FINEGRAIN—compared with carbon steel, up to 50% stronger • have high fatigue life with great toughness • are cold formed readily into difficult stampings • are stable against aging • have greater resistance to abrasion • are readily welded by any process • offer greater paint adhesion • polish to a high luster at minimum cost.

Although N-A-X FINEGRAIN'S resistance to normal atmospheric corrosion is twice that of carbon steel, N-A-X HIGH-TENSILE is recommended where resistance to extreme atmospheric corrosion is important.

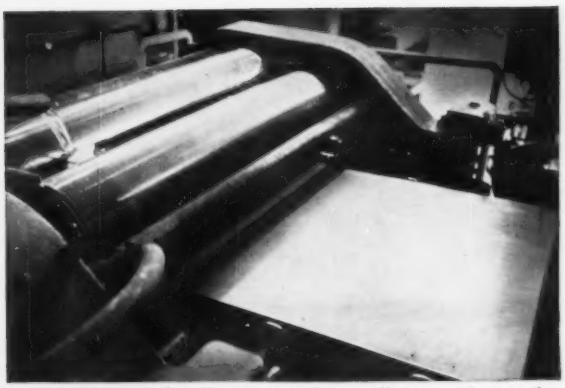
For whatever you make, from steel boats to steel bumpers, with N-A-X HIGH-STRENGTH steels you can design longer life, and/or less weight and economy into your products. Let us show you how.

3 Bumper wings, drawn double from N-A-X FINEGRAIN, emerge from press. After splitting and trimming, the protective draw coating is removed. Contoured bumper is then ready for plating without subsequent polishing.

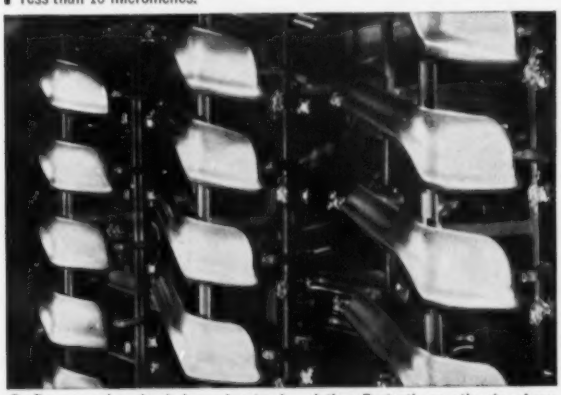




1 Hot rolled N-A-X FINEGRAIN sheets come out of flat polish with a finish of less than 10 microinches.

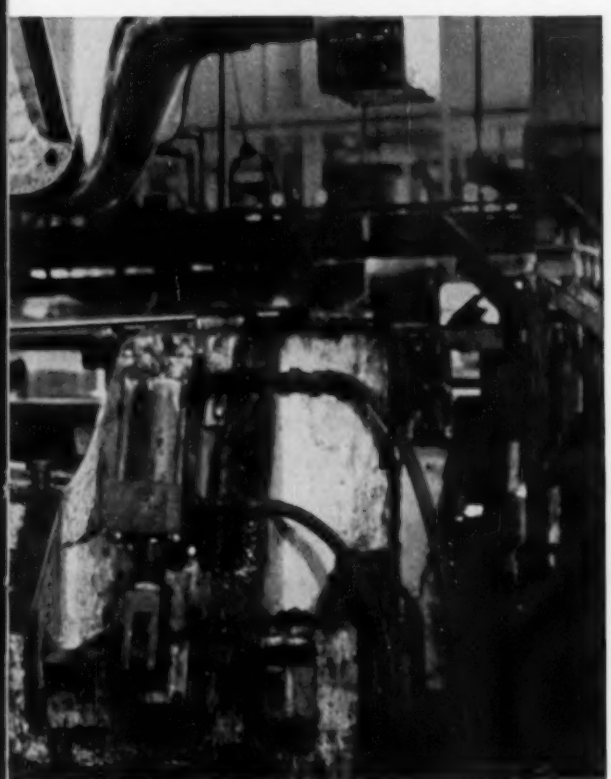


2 Sheet with protective phosphate and draw coatings comes from coating machine ready for the draw press.



4 Bumper wings loaded on elevator for plating. Protective coating has been removed. Note no surface disturbances occurred after drawing operation.

5 Final inspection after plating. No expensive hand-polishing was required from original flat polish to plating operation.



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Product Development Division, Dept. A-6

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Great Lakes Steel Corporation, Detroit 29, Michigan

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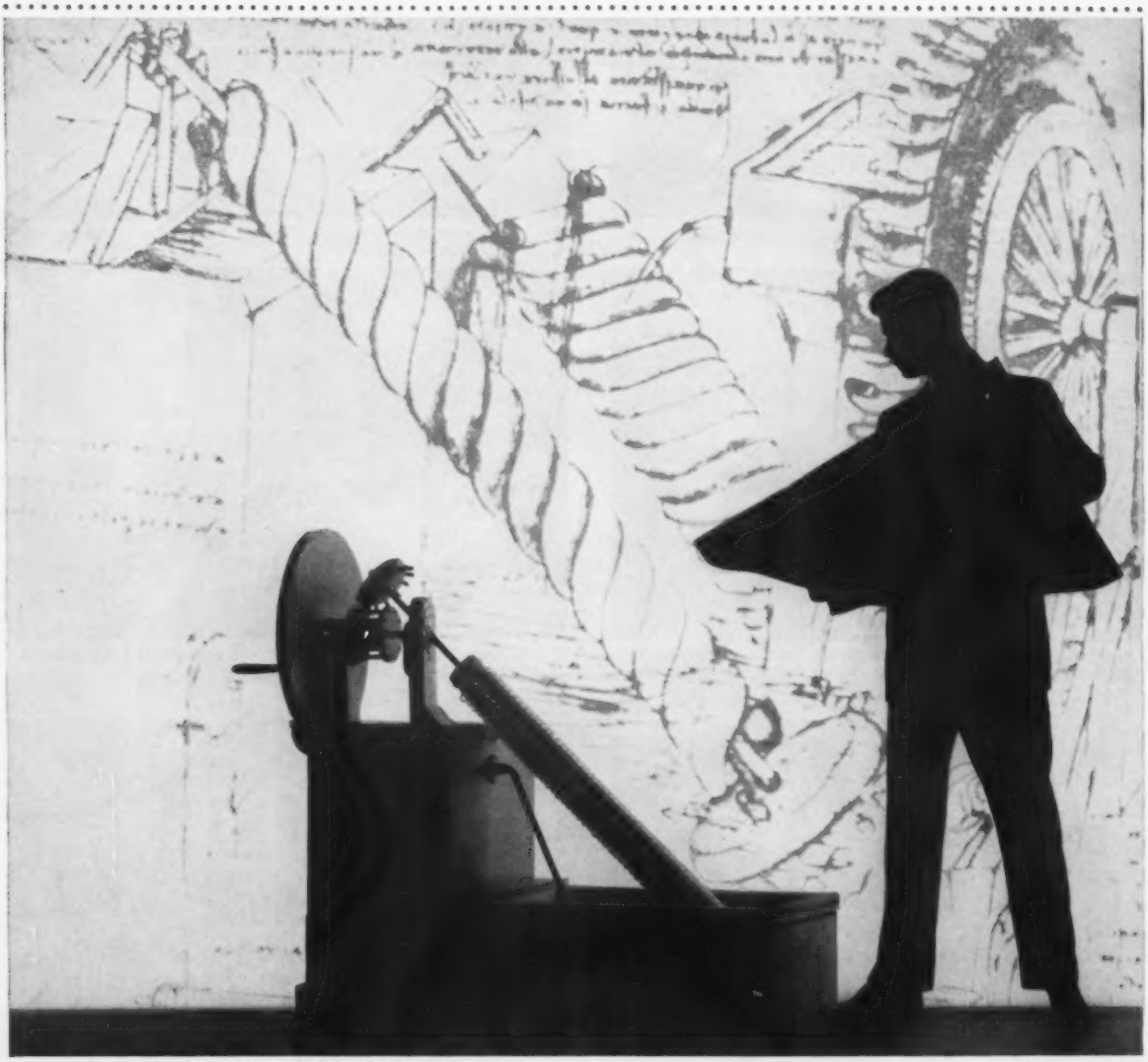
creative designing calls for an open mind



Leonardo Da Vinci's design for a pump using the Archimedian screw principle

Model courtesy of IBM

EVEN DA VINCI'S DESIGN FOR A PUMP COULD HAVE BEEN BETTER WITH HELP FROM AN SKF ENGINEER.

An SKF engineer never tends to favor one or two types of bearings in his recommendations. That's because SKF makes all four types of ball and roller bearings in over 3,000 sizes. This gives our engineers the kind of flexibility they need to keep an open mind on any bearings problem. Give your problem to us and see. 7822

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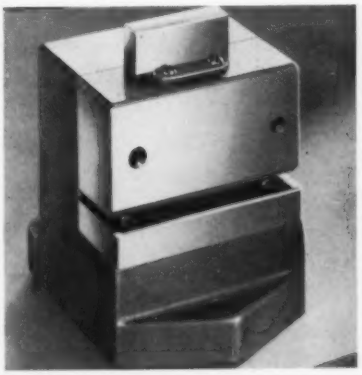
NEW EQUIPMENT

Notching Units

New standard notching units notch sheet materials up to a capacity of ⅛-in. mild steel. These units are available for rectangular or "vee" edge notching; for radius



notching; or in any irregular shapes within physical limits. Special sizes and shapes are quickly obtainable since only the punch tip and die have to be machined to individual customer specifications. (Wales-Strippit, Inc.)

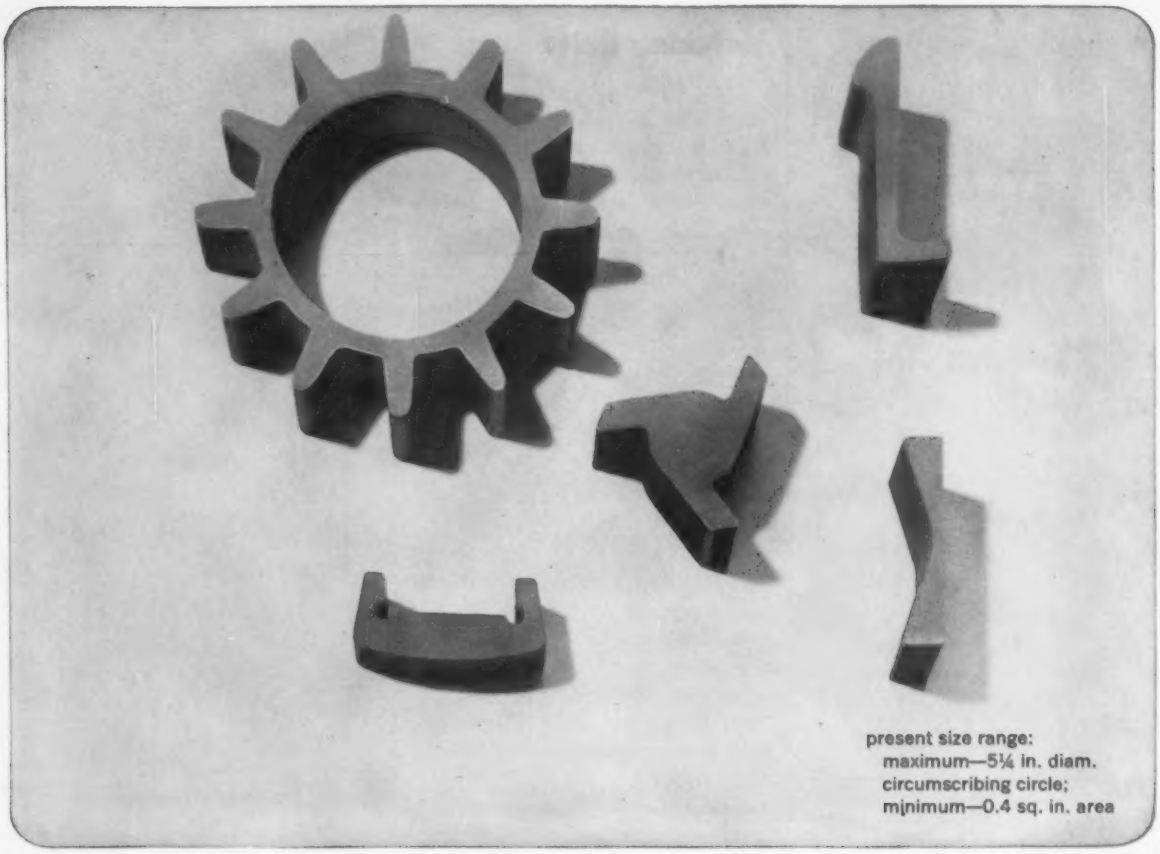
For more data circle No. 57 on postcard, p. 101

Steam Cleaner

Operating on electric power, this steam cleaner carries its own water supply. Designed specifically for indoor cleaning of machinery, equipment and work surfaces, the steam

cleaner quickly dissipates greases and oils. Flooding is eliminated because dry steam is generated rather than wet steam or hot water.

Experience**—the added alloy in **A-L Stainless, Electrical and Tool Steels



present size range:
maximum—5¼ in. diam. circumscribing circle;
minimum—0.4 sq. in. area

- 316 Stainless
- 304 Stainless
- Tool Steel Atlas 93
- SAE 4130
- 410 Stainless

Why hog out intricate shapes like these? **Let A-L extrude them in any steel**

If you're hogging out sections, paying for special mill rolls on small orders, or waiting for minimum rolling mill tonnages, Allegheny Ludlum Steel Extrusions are your answer. They will save you scrap loss, slash your machining costs, hold down your inventory requirements and cut delivery time.

Extruded shapes save money on expensive materials and on costly machining. Non-ferrous applications in the last decade have proven it. Now even greater savings are possible with tough, strong metals in Allegheny Ludlum Steel Extrusions.

Intricate extruded shapes in all stainless grades, tool steels, carbon steels, electrical steels, high temperature alloys, even zirconium and nickel alloys are now in production at Allegheny Ludlum, cutting costs in many different industries.

Costs and minimum order quantities are surprisingly low. Charge for die design is under $200. Orders taken for as little as 40 pounds.

To learn more about the time and cost-cutting possibilities of Allegheny Ludlum Hot Steel Extrusions, send for the extrusion booklet—12-pages of design and engineering information with process and product explanation, material properties, design tips and limitations, tolerances, order instructions, etc. Or call any A-L office for technical assistance. ***Allegheny Ludlum Steel Corporation, Oliver Building, Pittsburgh 22, Pa.*** Address Dept. A-7A.

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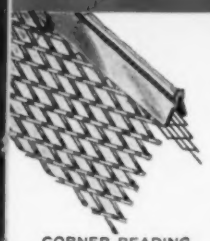
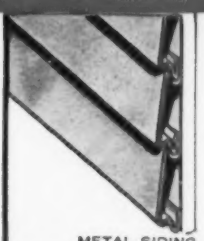
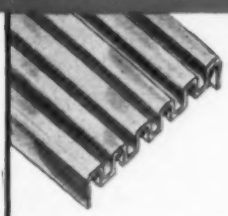
EVERY FORM OF STAINLESS . . . EVERY HELP IN USING IT

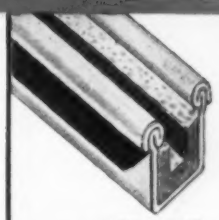
The Shapes of Things to Come


CORNER BEADING

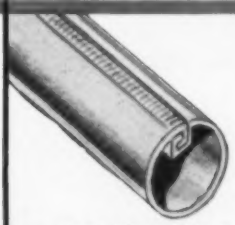

METAL SIDING


METAL DECK—FLUTING

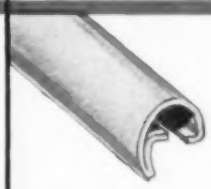

STAINLESS—GALVANIZED TRIM

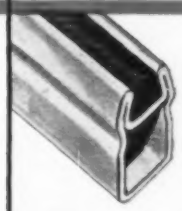

AUTOMOTIVE WEATHERSTRIP

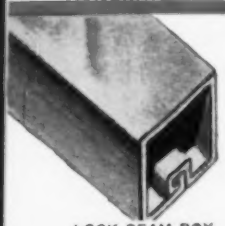

RACEWAYS

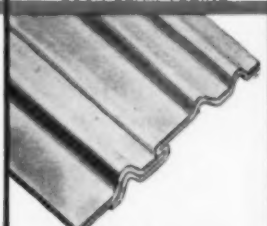

LOCK SEAM TUBING

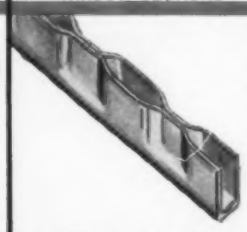

WINDOW SECTIONS

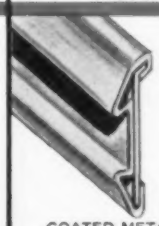

MOULDING

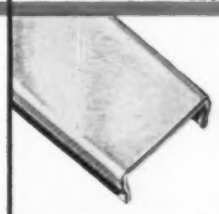

NAILING FLANGES


LOCK SEAM BOX SECTIONS


METAL ROOFING


IRREGULAR PATTERNS


COATED METAL PRICE STRIPS


SHEET and STRIP FLANGING

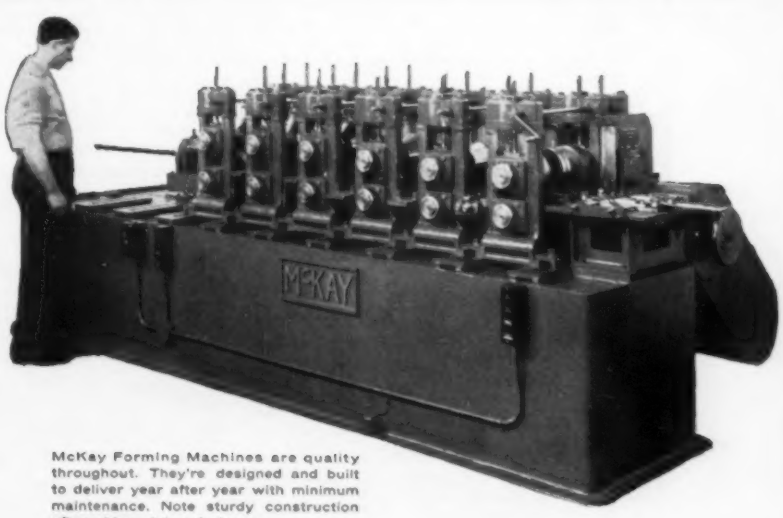
Call for McKAY FORMING MACHINERY

Two words that best describe McKay Forming Machines are "precision" and "ruggedness."

McKay Forming Machines are the last word in quality. They're designed and built to perform with extreme accuracy year after year. McKay users the world over know that quality is never sacrificed, even in the smallest details, for the sake of marketing a "cheaper" unit.

And McKay Forming Machines are built to customers' requirements with an eye to the future. They're machines that will not only meet today's needs, but machines that are ready for the faster speeds, tougher metals and more intricate shapes of tomorrow.

Be sure you have checked with McKay before you order forming equipment. You'll find this unmatched precision and ruggedness pays off in better forming at greatly reduced costs. And with a McKay—you're ready for tomorrow!



McKay Forming Machines are quality throughout. They're designed and built to deliver year after year with minimum maintenance. Note sturdy construction of machine pictured above.

The McKAY MACHINE Company
YOUNGSTOWN, OHIO

McK

ENGINEERS AND DESIGNERS OF EQUIPMENT FOR THE AUTOMOTIVE, FABRICATING AND STEEL INDUSTRIES

Equipped with fittings made from nickel-bearing stainless steel by Sharon Steel Corp., this cleaner is built for corrosion-free long life. Its water reservoir, pump and motor fit into one "package unit" which can be moved by hand. The cleaner comes in three power sizes. These can meet varied users' needs ranging from small parts to heavy equipment. Because it runs by electricity it gives off no fumes and is safe to operate. (Automatic Steam Products Corp.)

For more data circle No. 58 on postcard, p. 101

Gear Grinder

Using a grinding wheel similar to a large diameter hob or worm, a new grinding machine can produce extremely fine gear teeth (to 200 diametrical pitch). The full generating, continuous indexing type machine turns out the fine gears at high production rates. It'll grind spur gears, ratchets, involute splines, serrations, and other forms.

Tiny hardened and ground, 96 tooth, 200 pitch, 20° pressure angle gears have been generated on the machine at production speeds. (Sheffield Corp.)

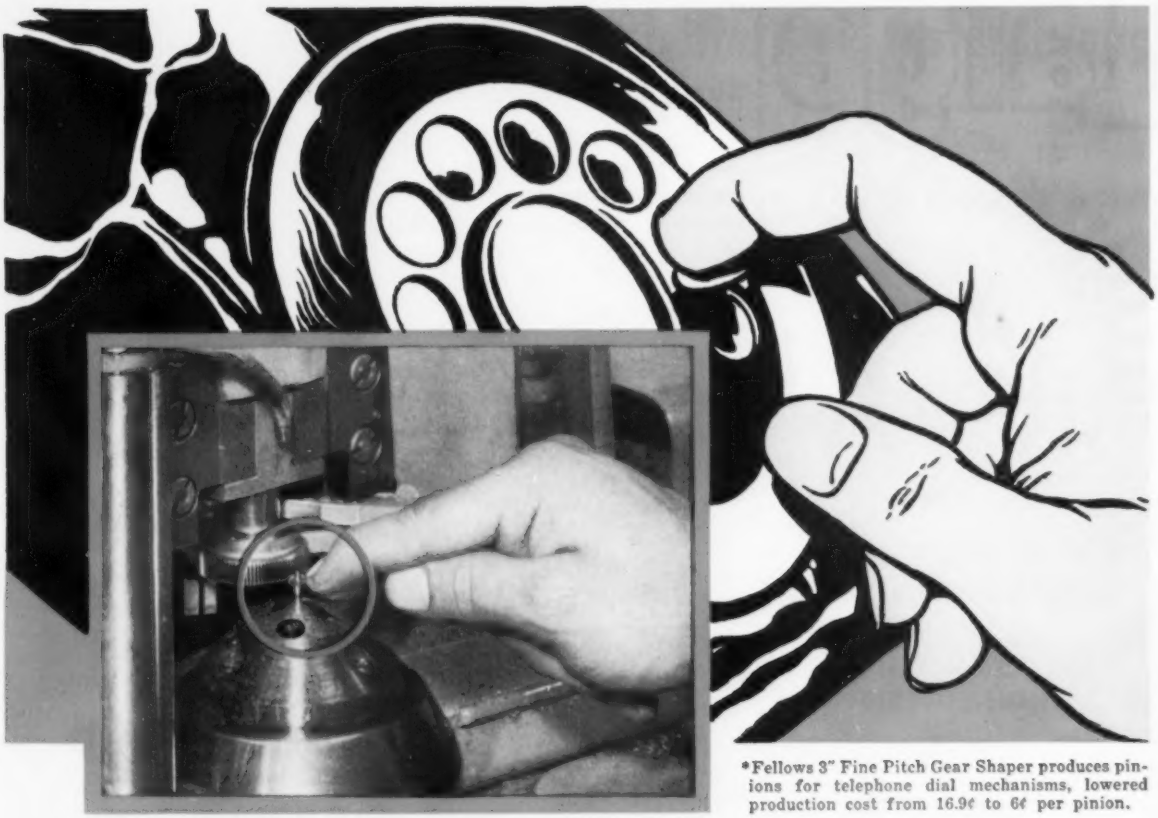
For more data circle No. 59 on postcard, p. 101

Metal Stamps

Steel stamps with round faces serve applications where critical stresses may be created through use of conventional sharp-faced stamps. These tools are recommended for marking parts subject to vibration. Round-faced stamps come in 11

sizes from 1/16 to ½ in. Sets ¼ in. and smaller are available in transparent plastic boxes; larger sizes come in compartmentalized wooden boxes. Stamps are available in 9 and 10 piece figure sets, and 26 and 27 piece letter sets—in either Gothic or Roman type face. (M. E. Cunningham Co.)

For more data circle No. 60 on postcard, p. 101



*Fellows 3" Fine Pitch Gear Shaper produces pinions for telephone dial mechanisms, lowered production cost from 16.9¢ to 6¢ per pinion.

GEARED to put the world at your finger tips!

A movement of your finger brings the whole country within reach of your telephone... thanks to the automatic dial system! For only dependable dial switching can handle tens of millions of calls daily, leave operators free for long distance and other non-routine services.

Tiny gears produced on Fellows Gear Shapers are important to the smooth, dependable service of many of America's dial phones, providing trouble-free performance year after year, decade after decade. These pinions must be of high quality, yet production cost must be low. For telephones, as for many other products, the requirements for accuracy and low cost in gears are met by Fellows Gear Production Equipment.*

Your own gear production needs, from 1/16" to 120" pitch diameter, can probably be met more profitably and efficiently with Fellows equipment. Why not get full information? Just write, wire or phone any Fellows office.

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78 River Street, Springfield, Vermont
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5835 West North Avenue, Chicago 39
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THE PRECISION LINE

Fellows *Gear Production Equipment*

NEW EQUIPMENT

Sample Handler

A new 6-in. semi-automatic pneumatic tube system can speed samples to testing and analysis laboratories. The system makes use of a large carrier equipped with a rubber insert or boot. This holds a

sample container firmly; it prevents jostling while in transit. The carrier's destination is controllable by means of a brass band on the body of the carrier. (The Lamson Corp.)

For more data circle No. 61 on postcard, p. 101

Locomotive Batteries

Silver-clad electrical batteries for diesel locomotive uses are recommended for use with in-plant and inter-plant haulers. According to a 6-page folder, they help engines get off to quick starts. This is important to operators whose locomotives are continually stopping and starting, as opposed to long straight-away runs. (C & D Batteries, Inc.)

For more data circle No. 62 on postcard, p. 101

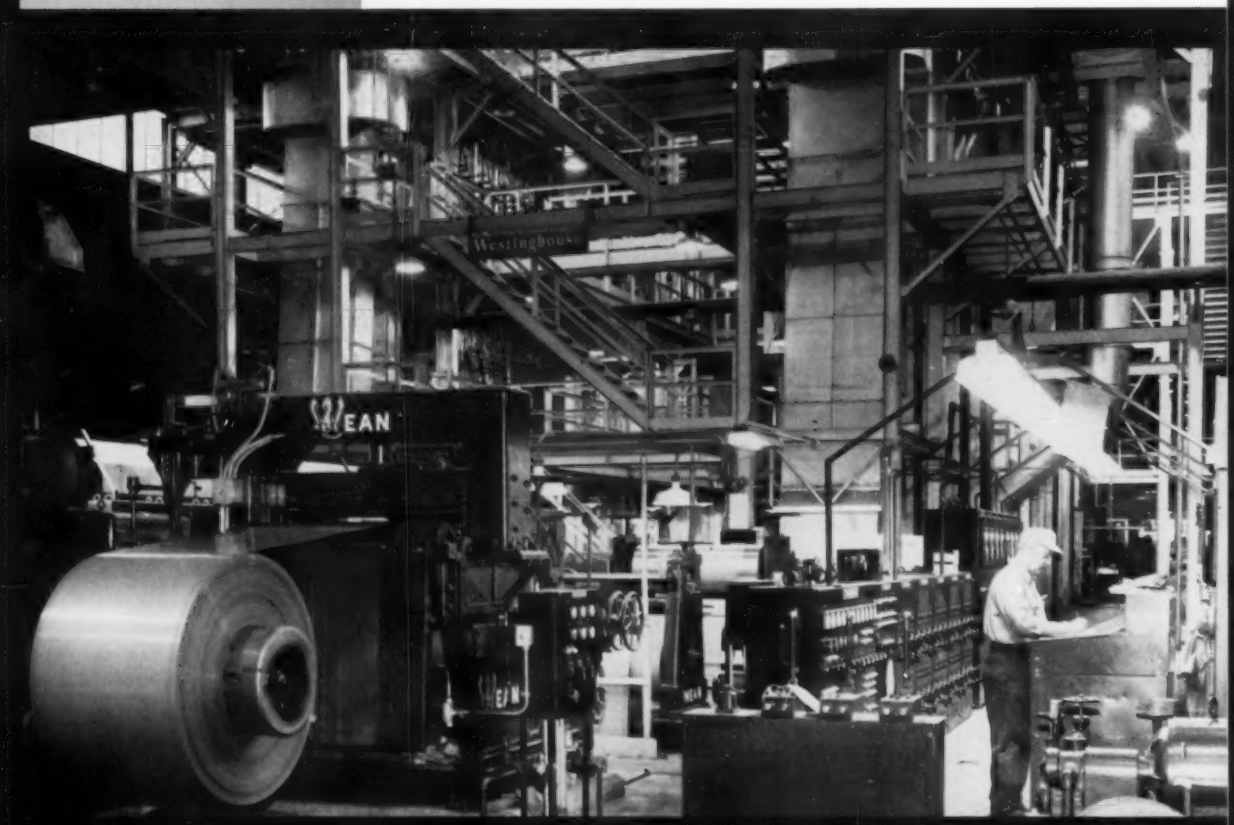
Testing Machine

A large jet-engine research and development firm is now manufacturing a mechanical-properties testing machine. This multi-purpose tool performs automatically a variety of physical-properties tests on metallic materials at temperatures to 3000°F. It heats and loads sample specimens over a wide range of rates of stress, strain, and heat. (Marquardt Aircraft Co.)

For more data circle No. 63 on postcard, p. 101

Continuous annealing produces better strip faster through

WEAN CREATIVE ENGINEERING



460

Moving at hundreds of feet a minute, silicon steel strip is annealed in this WEAN-Engineered continuous annealing line at U. S. Steel's Vandergrift plant. WEAN Creative Engineering provides better operating control and more uniform anneal at maximum speed for this type of operation.

WEAN has designed and built nine silicon and tinplate lines—eleven stainless steel lines . . . more than all other firms combined. Why not call on this vast experience in Creative Engineering to solve your annealing problems.

THE WEAN ENGINEERING COMPANY INC., WARREN, OHIO

GREENLEE TRANSFER MACHINES

Change with Your Requirements

THIS MACHINE HAS BEEN REWORKED FOUR TIMES

The "building block" idea of machine tool design has gained much popularity in recent years. Greenlee has long built such flexibility into their transfer machines. For example, the machine shown here has been modified 4 times in 11 years to accommodate changes in product design. Protect yourself from costly obsolescence. Ask Greenlee to show you how.

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GREENLEE BROS. & CO.

1807 MASON AVE.
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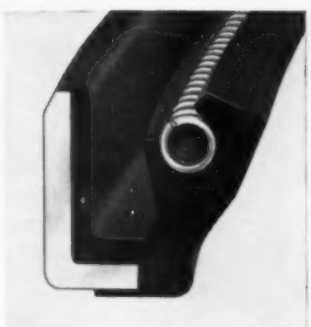
ANOTHER OF THE GARLOCK 2,000

LET 'EM ROLL...

fully protected by Garlock KLOZURE* Oil Seals

Each mammoth roll of a rolling mill is precisely designed and balanced. KLOZURE oil seals help maintain that balance through maximum bearing protection.

GARLOCK KLOZURE 142A—designed primarily for steel mills to seal surfaces perpendicular to shaft such as at end of mill roll. Acts as initial seal, keeps excessive water, scale, and other foreign matter from bearing oil seals. Available in any length for any diameter over 12". Comes in straight strip with strap for fastening. Maximum surface speed 5000 fpm, temp. 250° F. constant.



GARLOCK KLOZURE 2782—Positive oil seal protection for steel mill bearings. Garter spring holds Buna-N sealing element in contact with shaft. Precision formed case molded to sealing element protects seal from damage, and provides a press fit for proper installation. Available normal to high speed use on shafts to 48" dia., temperatures to 250° F, and for applications involving low pressure differentials.

It's easier to find the KLOZURE Oil Seal for your job because Garlock has one of the largest stocks available. Moreover, for any sealing problem, you can choose from the Garlock 2,000 . . . two thousand different styles of packings, gaskets, and seals. The only complete line. Call your Garlock representative or write for KLOZURE Catalog 20.

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No matter what you make from Cold Rolled Steel

An ALAN WOOD Representative can help!

If you produce this gadget . . . housewives will love you. Your market would be endless. But there would be problems about the kind of steel to use. Better call your A.W. Representative. Your A.W. Representative may order a metallurgical study of your problems and bring about savings that build new profits and increased production. He can provide you with the latest information on cold rolled steel and its application, plus experienced advice on the gauge, size and type to order. Call him today. Your A.W. Representative is always available . . . never out of touch with your location.

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IRON PRODUCTS
"Swede" *pig iron*

STEEL PRODUCTS
Plates (sheared)
A.W. Dynalloy (high strength steel)
Hot rolled sheets
Hot rolled strip
Cold rolled sheets
Cold rolled strip

ROLLED STEEL FLOOR PLATE
A.W. ALGRIP *abrasive*
A.W. SUPER-DIAMOND *pattern*

COAL CHEMICALS

A.W. CUT NAILS
Standard & Hardened

MINE PRODUCTS
Iron ore concentrates
Iron powder
Crushed stone
Sand

COKE
Foundry, industrial & metallurgical

PENCO METAL PRODUCTS DIVISION
Steel cabinets, lockers & shelving

The Iron Age Summary

Detroit Plays It Close to Vest

Automakers will go slow on new model output until they see how sales are going.

They are gearing their steel orders to this pace while buying public makes up its mind.

■ It looks as though Detroit will be of little help to the lagging steel market in the near future. Word from the automakers is that they plan to go slow on new model output until they see how sales are going. And they are placing their orders for steel on that basis.

This means that the automakers are buying only what they think they will need to build the cars they have scheduled. Steelmakers are trying to convince them they should build their steel inventories as well.

How Detroit Sees It—No one is sure how the new model cars will go over with the public. But having spent the better part of the present model year adjusting material inventories, the carmakers don't want to go through the process again next year. "So," they reason, "buy what you think you need. If you need more, you can always get it."

Meanwhile, the furore over the delay in the steel price rise has died down. Everyone seems to be marking time until U. S. Steel Corp. makes up its mind to move on prices. It still looks as though August will be the crucial month, although there is little if any hedge buying on that basis.

A Bright Spot—Incoming orders during the past week have shown seasonal declines, but practically all steelmakers look for some improvement in August. The market situation varies by districts. In at least one area some steel firms report new business is equal to the same period in June, when orders were fairly high.

One bright spot in the June steel order bulge was that only about 20 pct of it represented price hedging. This would indicate that the great majority of customers who have been placing orders during the last 40 days have been doing so because they need steel quickly; and not because they are speculating on the timing of the expected price advance.

Watch For Short-Term Pinches—Steel stocks in the hands of most users are at low ebb. Metal-working companies are assuming they can get more steel in a hurry when they need it. This will lead to short-term pinches in steel supply even though the over-all availability of steel is plentiful.

At least one mill is warning its customers of the possibility of "famine amidst plenty." It has estimated its operating rate over the balance of the year and is indicating what its delivery position will be as steel demand moves up in the third and fourth quarters.

Be On The Alert—In short, this company is putting steel users on notice that delivery promises on some products could stretch to the point where a customer needing "overnight" delivery might not be able to get it.

Steel Output, Operating Rates

Production	This Week	Last Week	Month Ago	Year Ago
(Net tons, 000 omitted)	1,512	1,444	1,741	2,048
Ingot Index				
(1947-1949=100)	94.0	89.8	108.4	127.5
Operating Rates				
Chicago	63.0	62.0*	73.0	81.0
Pittsburgh	47.5	48.5*	60.5	83.0
Philadelphia	60.0	53.0	71.0	90.0
Valley	46.5	33.0*	48.0	74.0
West	64.0	64.5*	79.0	99.0
Cleveland	48.5	37.0*	49.0	78.0
Buffalo	39.0	39.0	54.0	90.0
Detroit	56.0	55.0*	66.5	84.0
South	53.5	50.5	66.0	92.0
South Ohio River	43.0	68.0*	64.0	64.0
Upper Ohio River	75.5	75.0*	73.0	72.0
St. Louis	93.0	84.0*	86.0	84.0
Northeast	35.5	35.5	35.5	50.0
Aggregate	56.0	53.5	64.5	80.0

*Revised

Prices At a Glance

(cents per lb unless otherwise noted)	This Week	Week Ago	Month Ago	Year Ago
Composite price				
Finished Steel, base	5.967	5.967	5.967	5.967
Pig Iron (Gross ton)	$66.49	$66.49	$66.49	$64.95
Scrap, No. 1 hvy (Gross Ton)	$37.50	$36.50	$35.17	$54.17
No. 2 bundles	$26.83	$26.83	$25.83	$44.50
Nonferrous				
Aluminum ingot	26.10	26.10	26.10	27.10
Copper, electrolytic	25-26.50	25-26.50	25-26.50	29.25
Lead, St. Louis	10.80	10.80	10.80	13.80
Magnesium	36.00	36.00	36.00	36.00
Nickel, electrolytic	74.00	74.00	74.00	74.00
Tin, Straits, N. Y.	94.00	94.00	94.50	96.00
Zinc, E. St. Louis	10.00	10.00	10.00	10.00

Truck Makers Battle for Sales

Industrial truck makers are trying to coax buyers with expanded lines offering improved performance.

However, they may have to boost prices to meet increasing costs.

▪ Sharper competition has been the main factor in the industrial truck market this year.

Sales are off about 18 pct from 1957. Manufacturers have cut back both production and inventories. But most companies say they have been careful not to go too far. As a result the delivery picture hasn't changed. You can still get almost any standard model within about two weeks.

Prices May Rise — Increasing costs have trimmed profit margins. But prices haven't changed in 1958. They might. Some makers are faced with wage hikes. And no one will commit himself on what he will do if the price of steel goes up.

While the total number of trucks being sold is down, the number of different models available has increased. Most of these reflect expanded lines by a number of major producers rather than radical innovations.

Yale & Towne Mfg. Co., Philadelphia, for instance, is now offering an industrial tractor shovel for the first time. The company says this marks its entry into the field of bulk materials handling. Its unit has a 25 pct greater work capacity than other such units, Y&T says.

Better Performance—Overall performance of almost all lift trucks on today's market is improved. The Los Angeles chapter of the American Material Handling Society held its annual fork truck rodeo in May. Based on the performance of 132 entrants driving trucks from all major makers, one official observer remarked, "I believe there are a number of improvements in the 1958 models which permit better overall performance."

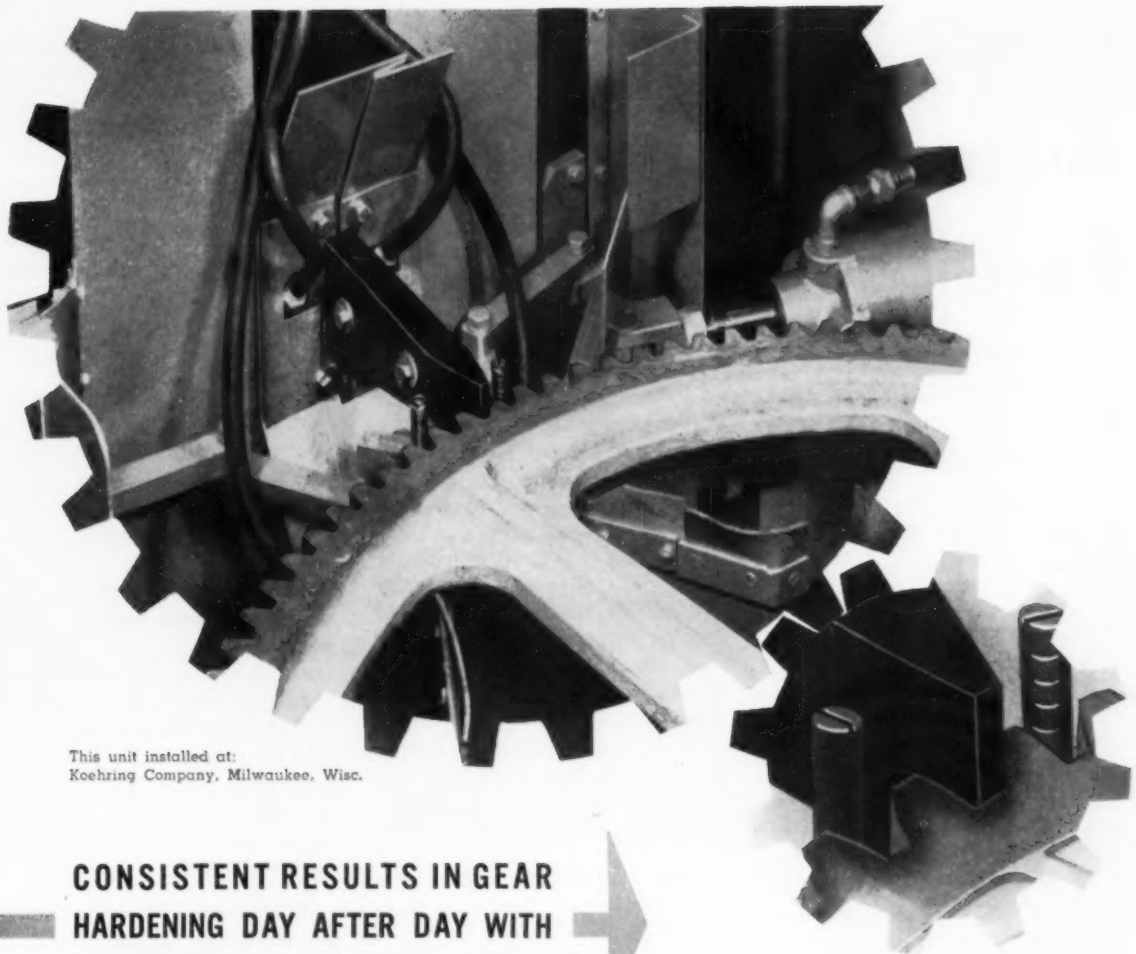
Despite this, makers report they are starting to feel a pinch from imported models. Canada has been a major market for a number of companies. But currently German machines are boosting their share of this market.

Industrial truck makers in the U. S. are approaching this problem from a number of directions. International trade is a two-way street for Yale & Towne. It recently landed an order for 572 fork lift trucks from the Brazilian government. Its 4000-lb KGP51 will soon be operating in 18 Brazilian ports.

What's Featured — Some companies, like The Baker-Raulang Co., Cleveland, are counting on their unique developments to build new markets. The Cleveland concern is pushing a sideloader unit, some features of which are protected by patents. B-R says sales are growing slowly but steadily.

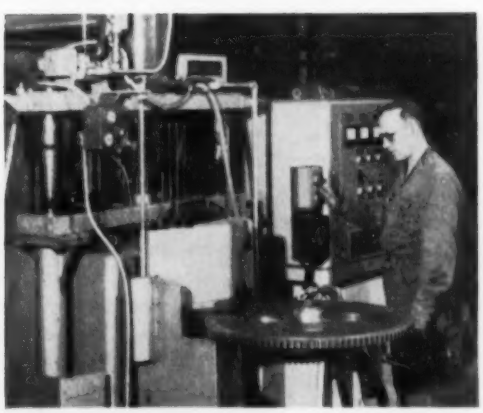
Clark Equipment Co., Buchanan, Mich., is an example of a company selling on sheer performance of standard models. Kawneer Co., Niles, Mich., an aluminum extruder, switched to the 4000-lb Clarklift Model C-40 when Clark engineers showed them how the machine would fit into various phases of their operation and cut handling time. Unloading aluminum ingot from box cars has been reduced from 90 minutes to under an hour by better maneuverability and faster lift cycles. And the forks are even used to push ingots into furnaces.

FIVE AT A TIME: Through use of special attachment Yale & Towne industrial truck is easily adapted to handle five drums at one time.



This unit installed at:
Koehring Company, Milwaukee, Wisc.

CONSISTENT RESULTS IN GEAR HARDENING DAY AFTER DAY WITH MAGNETHERMIC INDUCTION HEATING



Magnethermic tooth-by-tooth Gear Hardener produces a product superior to any gear produced by other heat treat methods. The secret—hardening the root as well as the contact surfaces. This method increases the tooth strength at little increase in gear cost.

In some cases, customers have been able to reduce gear size and cost because of added gear strength resulting from the Magnethermic hardening process.

The Magnethermic unit is easily integrated into production flow. The automation advantages of induction heating minimize the training of operating personnel. Users are able to get extremely consistent results from day to day.

MAGNETHERMIC®
CORPORATION
3990 SIMON RD. • YOUNGSTOWN 7, OHIO

Engineering Idea Leadership in Induction Heating
60 to 450,000 Cycles

August Orders Will Be Closely Checked

Pace of steel buying next month will be studied by both users and mills.

It should give clues on what to expect in steel sales through the fall.

▪ Steel users continue ordering in dribs and drabs, depending on mills for quick delivery. Most, knowing they can get shipment in a hurry, are not bothering to build up stocks.

There are indications, however, that this pattern may change next month. By that time automotive steel buyers will be more active. While their tonnage for '59 model output will not be as heavy as last year, it will represent an added buying influence on mill order books. Other steel users will probably increase buying so as not to be caught short.

Mills, too, are looking ahead to August orders for clues about steel use for the balance of '58. Evidence about what Detroit steel buyers have in mind will then be more plentiful. Other users, resuming operations after vacation shutdowns, may betray low inventories by ordering. It's clear now that some buying in June represented steel needed for use and not price hedging.

Sheet and Strip—July sheet shipments have dropped sharply from June levels. However the decline is about what mills expected. Automotive sheet tonnages should boost August sales. However, it's believed the automakers will go slow on initial new car production, avoiding the stock buildup of last year. For that reason they are now buying only the steel required to complete the cars scheduled.

Galvanized sheet orders continue at a good pace, although behind last year's rates. Home and commercial construction work is an important factor in the demand for galvanized.

Bars—Shipments of hot-rolled bars are dragging along at reduced rates for July. Farm implement makers are one of the few buying groups still active. Manufacturers of roadbuilding equipment are starting to show a few signs of life. Opinion on the bar market: No general pickup before late August or September.

Plate — Plate mill capacity at U. S. Steel's Tennessee Coal & Iron Division will be increased by 20 pct. It will be accomplished by installing more modern, efficient handling equipment and by reducing the time facilities are down for maintenance and repair. New equipment slated for installation includes: additional slab heating capacity, modified and improved finishing units, and additional shipping equipment.

Piping and Tubing—Some slight pickup in oil country seamless sales is noted at **Pittsburgh.** Mills report field stocks are moving out to customers a little more briskly. In addition, a few more mill orders are coming in. The gain is small, but producers are hoping the corner has been turned.

National Supply Co. is closing its seamless and welded pipe mills near **Pittsburgh** for two weeks this month.

Plumbing pipe sales are slack on the **West Coast** despite near-record building construction. Users there are depending on the mills for inventories.

Tinplate — Both shipments and new orders are lagging, producers say. Some mills expect August will be the worst month of the year so far. While the lag is puzzling in view of current canning activity, the answer seems to be short-term ordering by tinplate consumers. With plenty of tin mill capacity available, canmakers are cutting inventories short and depending on quick deliveries. As a result of the shipping slowdown, tinplate producers are carrying heavy finished inventories. However, shipments of metal cans are running only about 6 pct behind last year's levels.

Warehouses—Three factors are responsible for a recent slight, but steady increase in distributor shipments, according to the Executive Committee of the American Steel Warehouse Assn. After surveying its members, the Association says the improvement is due to construction activity, more government contracts, and re-ordering by manufacturers with low inventories.

Robert G. Welch, executive vice president, lists structural steel, stainless, and many flat-rolled products as among those in better demand. He points out that the decline in warehouse shipment began in May, 1957, and continued through November. Noting that they held around the same levels from November until this March, he adds, "Our tonnage shipment reports from all sections show a 5 pct increase in April and a very slight gain in May . . . (and) a continuation of the increase in June. (we expect) a sizable boost in shipments in the fall and winter months."

PURCHASING AGENT'S CHECKLIST

British are concerned about Soviet metals dumping. **P. 24**

U. S. pump priming is putting some zip into economy. **P. 53**

Be willing to spend for equipment with maintenance-reducing features, expert says. **P. 57**

COMPARISON OF PRICES

(Effective July 15, 1958)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in **Heavy Type**; declines appear in *Italics*.

	July 15 1958	July 8 1958	June 17 1958	July 16 1957
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	4.925¢	4.925¢	4.925¢	4.925¢
Cold-rolled sheets	6.05	6.05	6.05	6.05
Galvanized sheets (10 ga.)	6.60	6.60	6.60	6.60
Hot-rolled strip	4.925	4.925	4.925	4.925
Cold-rolled strip	7.17	7.17	7.17	7.17
Plate	5.12	5.12	5.12	5.12
Plates, wrought iron	13.15	13.15	13.15	13.15
Stainl's C-R strip (No. 302)	52.00	52.00	52.00	52.00
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) cokes	$10.30	$10.30	$10.30	$10.30
Tin plates, electro (0.50 lb.)	9.00	9.00	9.00	9.00
Special coated mfg. ternes	9.55	9.55	9.55	9.55
Bars and Shapes: (per pound)				
Merchant bar	5.425¢	5.425¢	5.425¢	5.425¢
Cold finished bar	7.30	7.30	7.30	7.30
Alloy bars	6.475	6.475	6.475	6.475
Structural shapes	5.275	5.275	5.275	5.275
Stainless bars (No. 302)	45.00	45.00	45.00	45.00
Wrought iron bars	14.45	14.45	14.45	14.45
Wire: (per pound)				
Bright wire	7.65¢	7.65¢	7.65¢	7.65¢
Rails: (per 100 lb.)				
Heavy rails	$5.525	$5.525	$5.525	$5.525
Light rails	6.50	6.50	6.50	6.50
Semifinished Steel: (per net ton)				
Rerolling billets	$77.50	$77.50	$77.50	$77.50
Slabs, rerolling	77.50	77.50	77.50	77.50
Forging billets	96.00	96.00	96.00	96.00
Alloy blooms, billets, slabs	114.00	114.00	114.00	114.00
Wire Rods and Skelp: (per pound)				
Wire rods	6.15¢	6.15¢	6.15¢	6.15¢
Skelp	4.875	4.875	4.875	4.875
Finished Steel Composite: (per pound)				
Base price	5.967¢	5.967¢	5.967¢	5.967¢

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

	July 15 1958	July 8 1958	June 17 1958	July 16 1957
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	$70.97	$70.97	$70.97	$70.38
Foundry, Valley	66.50	66.50	66.50	65.00
Foundry, Southern Cin'ti	73.87	73.87	73.87	67.17
Foundry, Birmingham	62.50	62.50	62.50	61.33
Foundry, Chicago	66.50	66.50	66.50	65.00
Basic, del'd Philadelphia	70.47	70.47	70.47	69.88
Basic, Valley furnace	66.00	66.00	66.00	64.50
Malleable, Chicago	66.50	66.50	66.50	65.00
Malleable, Valley	66.50	66.50	66.50	65.00
Ferromanganese 74-76 pct Mn, cents per lb‡	12.25	12.25	12.25	12.75
Pig Iron Composite: (per gross ton)				
Pig iron	$66.49	$66.49	$66.49	$64.95
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	$39.50	$38.50	$37.50	$56.50
No. 1 steel, Phila. area	34.50	33.50	33.50	54.50
No. 1 steel, Chicago	38.50	37.50	34.50	51.50
No. 1 bundles, Detroit	31.50	31.50	31.50	48.50
Low phos., Youngstown	39.50	39.50	37.50	56.50
No. 1 mach'y cast, Pittsburgh	48.50	48.50	48.50	58.50
No. 1 mach'y cast, Phila.	47.50	47.50	47.50	56.50
No. 1 mach'y cast, Chicago	47.50	46.50	46.50	50.50
Steel Scrap Composite: (per gross ton)				
No. 1 hvy. melting scrap	$37.50	$36.50	$35.17	$54.17
No. 2 bundles	26.83	26.83	25.83	44.50
Coke Connellsville: (per net ton at oven)				
Furnace coke, prompt	$15.38	$15.38	$15.38	$15.38
Foundry coke, prompt	$17.50-$19	$17.50-$19	$17.50-$19	$17.50-$19
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	25-26.50	25-26.50	25-26.50	29.25
Copper, Lake, Conn.	25.00	25.00	26.50	29.25
Tin, Straits, N. Y.	94.00†	94.00	94.50	96.00
Zinc, East St. Louis	10.00	10.00	10.00	10.00
Lead, St. Louis	10.80	10.80	10.80	13.80
Aluminum, virgin ingot	26.10	26.10	26.10	27.10
Nickel, electrolytic	74.00	74.00	74.00	74.00
Magnesium, ingot	36.00	36.00	36.00	36.00
Antimony, Laredo, Tex.	29.50	29.50	29.50	33.00

† Tentative. ‡ Average. • Revised.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Steel Scrap Composite

Averages of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

INDEX TO PRICE PAGES

A Tighter Market Boosts Prices

Scrap dealers are winning some of their battle to hold out for higher prices.

Trade is confident of better things to come in late summer or early fall and is basing current operations on autumn hopes.

▪ The market continues to strengthen, with general price increases in most of the major markets.

In most cases, price increases are based on actual mill purchases, with consumers finding it necessary to raise prices on even small sales.

The new market strength is not based on immediate demand, which continues slow. But the trade is confident of better things to come in August and September and is holding out for higher prices, and getting them when sales are made.

Dealers themselves are stepping up their purchases. In many cases they obviously are building up a low-priced inventory in hopes of cashing in when and if higher prices develop.

Low manufacturing activity has resulted in much smaller list tonnages and the lack of prime industrial scrap may account for some of the interest in premium grades. Although some price increases were established for No. 2 grades, demand is stronger for primary grades by comparison.

Following price increases in all three base areas, The IRON AGE No. 1 Heavy Melting Composite rose to $37.50.

Pittsburgh — Reflecting bidding on railroad lists and strength in other districts, price of No. 1 heavy melting is up $1. Secondary grades did not move. A final list pushed railroad grades up about $3 from earlier lists this month. Tonnage was small and it's a question whether local consumers will pay the full increase. However, it's clear local buyers will have to pay more to meet outside competition and to overcome dealer resistance here.

Chicago—Fresh mill purchases during the week boosted prices by at least $1 all along the list. Reports of brokers attempting to cover short positions boosted dealer selling prices almost before the new mill orders were written. Railroad lists continue to sell at well above established mill sales.

Philadelphia — Primary openhearth grades and No. 2 heavy melting rose $1 on a stiffening market. Most turning grades are also up, as is heavy breakable cast. Export for July has been written off, and there is no word yet about possible August export business. But dealers are reported to be taking in more scrap in anticipation of better business in August and September.

Detroit—Trading is at a virtual standstill with the exception of light trading in selected turnings and cast grades. As dealer scrap sources continue to dry up, dealers are becoming more reluctant to sell, preferring to wait for prices to move.

Cleveland — The market continues in the summer doldrums, with movement very slow and prices unchanged. Secondary grades are moving outside the district for lack of local demand. Because of poor demand, a large part of auto lists has gone out of the district. Foundry vacations have also cut the cast market.

New York — Prices are holding fast although little material is moving. No. 1 and 2 heavy melting are receiving support in a small way from exporters who are building stocks against expected new orders. Domestic orders have boosted No. 2 bundles $1 to draw out material.

St. Louis—The market continues very strong and increased prices are expected, in view of a high operating rate in district mills and pressure from other centers. Movement picked up again last week. Turnings are down, but some grades are up.

Birmingham — Most of the activity in this area is in electric furnace grades, with openhearth consumers out of the market. Cast is strong and, because of limited supply, some consumers are going out of the territory. Northern consumers, however, are reaching for other grades into the area generally considered the supplier for southern mills.

Cincinnati — The market is healthier but movement is still slow. Some blast furnace grades here picked up slightly on out-of-area demand.

Buffalo — The market remains unchanged with no activity. Dealer inventories have increased slightly in the past month. Mills show no interest in making big purchases.

Boston—There is little activity here although there is still a possibility of some export. The trade expects it to materialize within the next month or so.

West Coast — Prices are firm. Scrap activity continues extremely light. There's keen competition among the dealers for the small amount of business around. Mills are taking minimum tonnages.

SCRAP PRICES *(Effective July 15, 1958)*

Pittsburgh

No. 1 hvy. melting	$39.00 to $40.00
No. 2 hvy. melting	**31.00 to 32.00**
No. 1 dealer bundles	39.00 to 40.00
No. 1 factory bundles	42.00 to 43.00
No. 2 bundles	**28.00 to 29.00**
No. 1 busheling	39.00 to 40.00
Machine shop turn.	16.00 to 17.00
Mixed bor. and ms. turn.	16.00 to 17.00
Shoveling turnings	20.00 to 21.00
Cast iron borings	20.00 to 21.00
Low phos. punch'gs plate	41.00 to 42.00
Heavy turnings	**32.00 to 33.00**
No. 1 RR hvy. melting	41.00 to 42.00
Scrap rails, random lgth.	51.00 to 52.00
Rails 2 ft and under	54.00 to 55.00
RR steel wheels	47.00 to 48.00
RR spring steel	47.00 to 48.00
RR couplers and knuckles	47.00 to 48.00
No. 1 machinery cast.	49.00 to 50.00
Cupola cast.	40.00 to 41.00
Heavy breakable cast.	39.00 to 40.00
Stainless	
18-8 bundles and solids	**175.00 to 185.00**
18-8 turnings	**105.00**
430 bundles and solids	**100.00 to 105.00**
410 turnings	**45.00**

Chicago

No. 1 hvy. melting	$38.00 to $39.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 dealer bundles	38.00 to 39.00
No. 1 factory bundles	**44.00 to 45.00**
No. 2 bundles	**28.00 to 29.00**
No. 1 busheling	38.00 to 39.00
Machine shop turn.	20.00 to 21.00
Mixed bor. and turn.	22.00 to 23.00
Shoveling turnings	22.00 to 23.00
Cast iron borings	22.00 to 23.00
Low phos. forge crops	47.00 to 48.00
Low phos. punch'gs plate	44.00 to 45.00
Low phos. 3 ft and under	42.00 to 43.00
No. 1 RR hvy. melting	43.00 to 44.00
Scrap rails, random lgth.	**48.00 to 49.00**
Rerolling rails	57.00 to 58.00
Rails 2 ft and under	53.00 to 54.00
Locomotive tires cut	50.00 to 51.00
Cut bolsters & side frames	47.00 to 48.00
Angles and splice bars	51.00 to 52.00
RR steel car axles	63.00 to 64.00
RR couplers and knuckles	47.00 to 48.00
No. 1 machinery cast.	47.00 to 48.00
Cupola cast.	41.00 to 42.00
Heavy breakable cast.	38.00 to 39.00
Cast iron brake shoes	38.00 to 39.00
Cast iron wheels	35.00 to 36.00
Malleable	51.00 to 52.00
Stove plate	38.00 to 39.00
Steel car wheels	45.00 to 46.00
Stainless	
18-8 bundles and solids	**180.00 to 185.00**
18-8 turnings	**95.00 to 100.00**
430 bundles and solids	**100.00 to 105.00**
430 turnings	**55.00 to 60.00**

Philadelphia Area

No. 1 hvy. melting	$34.00 to $35.00
No. 2 hvy. melting	30.00 to 31.00
No. 1 dealer bundles	34.00 to 35.00
No. 2 bundles	**23.00 to 24.00**
No. 1 busheling	34.00 to 35.00
Machine shop turn.	16.00 to 17.00
Mixed bor. short turn.	16.00 to 17.00
Cast iron borings	17.00 to 18.00
Shoveling turnings	18.00 to 19.00
Clean cast. chem. borings	**24.00 to 25.00**
Low phos. 5 ft and under	**38.00 to 39.00**
Low phos. 2 ft and under	**39.00 to 40.00**
Low phos. punch'gs	**39.00 to 40.00**
Elec. furnace bundles	35.00 to 36.00
Heavy turnings	**28.00 to 29.00**
RR steel wheels	**42.50 to 43.50**
RR spring steel	**42.50 to 43.50**
Rails 18 in. and under	**55.00 to 56.00**
Cupola cast.	**37.00 to 38.00**
Heavy breakable cast.	40.00 to 41.00
Cast iron car wheels	**41.00 to 42.00**
Malleable	**56.00 to 57.00**
Unstripped motor blocks	**30.00 to 31.00**
No. 1 machinery cast.	**47.00 to 48.00**

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	**$33.00 to $34.00**
No. 2 hvy. melting	**27.00 to 28.00**
No. 1 dealer bundles	**33.00 to 34.00**
No. 2 bundles	**22.00 to 23.00**
Machine shop turn.	13.00 to 14.00
Mixed bor. and turn.	13.00 to 14.00
Shoveling turnings	15.00 to 16.00
Cast iron borings	13.00 to 14.00
Low phos. 18 in. and under	**39.00 to 40.00**
Rails, random length	42.00 to 43.00
Rails, 18 in. and under	52.00 to 53.00
No. 1 cupola cast.	**40.00 to 41.00**
Hvy. breakable cast.	**32.00 to 33.00**
Drop broken cast.	44.00 to 45.00

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Cleveland

No. 1 hvy. melting	$34.50 to $35.50
No. 2 hvy. melting	24.50 to 25.50
No. 1 dealer bundles	34.50 to 35.50
No. 1 factory bundles	39.00 to 40.00
No. 2 bundles	20.50 to 21.50
No. 1 busheling	34.50 to 35.50
Machine shop turn.	10.00 to 11.00
Mixed bor. and turn.	14.00 to 15.00
Shoveling turnings	14.00 to 15.00
Cast iron borings	14.00 to 15.00
Cut structural & plates, 2 ft & under	39.00 to 40.00
Drop forge flashings	34.50 to 35.50
Low phos. punch'gs plate	35.50 to 36.50
Foundry steel, 2 ft & under	37.00 to 38.00
No. 1 RR hvy. melting	39.00 to 40.00
Rails 2 ft and under	53.00 to 54.00
Rails 18 in. and under	54.00 to 55.00
Railroad grate bars	14.00 to 15.00
Steel axle turnings	17.00 to 18.00
Railroad cast.	46.00 to 47.00
No. 1 machinery cast.	46.00 to 47.00
Stove plate	42.00 to 43.00
Malleable	58.00 to 59.00
Stainless	
18-8 bundles	175.00 to 185.00
18-8 turnings	95.00 to 100.00
430 bundles	90.00 to 95.00
430 turnings	35.00 to 40.00

Buffalo

No. 1 hvy. melting	$26.00 to $27.00
No. 2 hvy. melting	23.00 to 24.00
No. 1 busheling	26.00 to 27.00
No. 1 dealer bundles	26.00 to 27.00
No. 2 bundles	21.00 to 22.00
Machine shop turn.	10.00 to 11.00
Mixed bor. and turn.	11.00 to 12.00
Shoveling turnings	13.00 to 14.00
Cast iron borings	12.00 to 13.00
Low phos. plate	**32.00 to 33.00**
Structurals and plate, 2 ft and under	35.00 to 36.00
Scrap rails, random lgth.	39.00 to 40.00
Rails 2 ft and under	49.00 to 50.00
RR steel wheels	36.00 to 37.00
RR spring steel	32.00 to 33.00
RR couplers and knuckles	32.00 to 33.00
No. 1 machinery cast.	43.00 to 44.00
No. 1 cupola cast.	39.00 to 40.00

St. Louis

No. 1 hvy. melting	$33.00 to $34.00
No. 2 hvy. melting	30.00 to 31.00
No. 1 dealer bundles	33.00 to 34.00
No. 2 bundles	25.00 to 26.00
Machine shop turn.	15.00 to 16.00
Cast iron borings	17.00 to 18.00
Shoveling turnings	17.00 to 18.00
No. 1 RR hvy. melting	38.00 to 39.00
Rails, random lengths	45.00 to 46.00
Rails, 18 in. and under	50.00 to 51.00
Angles and splice bars	43.00 to 44.00
Std. steel car axles	56.00 to 57.00
RR specialties	41.00 to 42.00
Cupola cast.	43.00 to 44.00
Heavy breakable cast.	32.00 to 33.00
Cast iron brake shoes	35.00 to 36.00
Stove plate	42.00 to 43.00
Cast iron car wheels	37.00 to 38.00
Rerolling rails	57.00 to 58.00
Unstripped motor blocks	34.00 to 35.00

Birmingham

No. 1 hvy. melting	$30.00 to $31.00
No. 2 hvy. melting	25.00 to 26.00
No. 1 dealer bundles	30.00 to 31.00
No. 2 bundles	19.00 to 20.00
No. 1 busheling	30.00 to 31.00
Machine shop turn.	20.00 to 21.00
Shoveling turnings	21.00 to 22.00
Cast iron borings	12.00 to 13.00
Electric furnace bundles	36.00 to 37.00
Elec. furnace, 3 ft & under	34.00 to 35.00
Bar crops and plate	40.00 to 41.00
Structural and plate, 2 ft.	39.00 to 40.00
No. 1 RR hvy. melting	32.00 to 33.00
Scrap rails, random lgth.	44.00 to 45.00
Rails, 18 in. and under	46.00 to 47.00
Angles & splice bars	40.00 to 41.00
Rerolling rails	54.00 to 55.00
No. 1 cupola cast.	51.00 to 52.00
Stove plate	51.00 to 52.00
Charging box cast.	22.00 to 23.00
Cast iron car wheels	37.00 to 38.00
Unstripped motor blocks	40.00 to 41.00

Youngstown

No. 1 hvy. melting	38.00 to 39.00
No. 2 hvy. melting	28.00 to 29.00
No. 1 dealer bundles	38.00 to 39.00
No. 2 bundles	25.00 to 26.00
Machine shop turn.	12.50 to 13.50
Shoveling turnings	17.50 to 18.50
Cast iron borings	17.50 to 18.50
Low phos. plate	39.00 to 40.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$25.00 to $26.00
No. 2 hvy. melting	22.00 to 23.00
No. 2 dealer bundles	15.00 to 16.00
Machine shop turn.	7.00 to 8.00
Mixed bor. and turn.	10.00 to 11.00
Shoveling turnings	10.00 to 11.00
Clean cast. chem. borings	22.00 to 23.00
No. 1 machinery cast.	34.00 to 35.00
Mixed yard cast.	32.00 to 33.00
Charging box cast.	31.00 to 32.00
Heavy breakable cast.	31.00 to 32.00
Unstripped motor blocks	22.00 to 23.00
Stainless	
18-8 prepared solids	155.00 to 160.00
18-8 turnings	55.00 to 60.00
430 prepared solids	65.00 to 70.00
430 turnings	20.00 to 25.00

Detroit

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$28.00 to $29.00
No. 2 hvy. melting	22.00 to 23.00
No. 1 dealer bundles	31.00 to 32.00
No. 2 bundles	18.00 to 19.00
No. 1 busheling	28.00 to 29.00
Drop forge flashings	27.00 to 28.00
Machine shop turn.	11.00 to 12.00
Mixed bor. and turn.	12.00 to 13.00
Shoveling turnings	13.00 to 14.00
Cast iron borings	13.00 to 14.00
Low phos. punch'gs plate	29.00 to 30.00
No. 1 cupola cast.	37.00 to 38.00
Heavy breakable cast.	26.00 to 27.00
Mixed cupola cast.	38.00 to 39.00
Automotive cast.	39.00 to 40.00
Stainless	
18-8 bundles and solids	170.00 to 175.00
18-8 turnings	75.00 to 80.00
430 bundles and solids	80.00 to 85.00
410 turnings	20.00 to 25.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$22.00 to $23.00
No. 2 hvy. melting	17.00 to 18.00
No. 1 dealer bundles	22.00 to 23.00
No. 2 bundles	14.00 to 15.00
No. 1 busheling	22.00 to 23.00
Machine shop turn.	5.00 to 6.00
Mixed bor. and short turn.	5.00 to 6.00
Shoveling turnings	7.00 to 8.00
Clean cast. chem. borings	14.00 to 15.00
No. 1 machinery cast.	31.00 to 32.00
Mixed cupola cast.	26.00 to 27.00
Heavy breakable cast.	27.00 to 28.00
Stove plate	26.00 to 27.00
Unstripped motor blocks	22.00 to 23.00

San Francisco

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	30.00
No. 1 dealer bundles	28.00
No. 2 bundles	22.00
Machine shop turn.	15.00
Cast iron borings	15.00
No. 1 RR hvy. melting	32.00
No. 1 cupola cast.	45.00

Los Angeles

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	30.00
No. 1 dealer bundles	$27.00 to 28.00
No. 2 bundles	17.00
Machine shop turn.	11.00
Shoveling turnings	13.00
Cast iron borings	13.00
Elec. furn 1 ft and under (foundry)	43.00
No. 1 RR hvy. melting	33.00
No. 1 cupola cast.	39.00

Seattle

No. 1 hvy. melting	$30.00
No. 2 hvy. melting	28.00
No. 2 bundles	22.00
No. 1 cupola cast.	36.00
Mixed yard cast.	36.00

Hamilton, Ont.

No. 1 hvy. melting	$30.00
No. 2 hvy. melting	26.00
No. 1 dealer bundles	30.00
No. 2 bundles	23.00
Mixed steel scrap	25.00
Busheling	20.00
Bush., new fact., prep'd.	30.00
Bush., new fact., unprep'd	24.00
Machine shop turn.	15.00
Short steel turn.	19.00
Mixed bor. and turn.	15.00
Rails, rerolling	39.00
Cast scrap	$45.00 to 50.00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Aluminum Producers Offer Import Plan

U. S. producers proposed a five-point plan to State Dept. to combat imports, strengthen domestic industry.

Battle lines appear to be unchanged by the proposals.

▪ Domestic aluminum producers now agree on what they want from the government to combat low-priced imports, and to strengthen the U. S. industry.

Early this week they presented a five-point program for State Dept. consideration.

Initial industry reaction indicates the producers won few new friends.

Program—The producers suggested:

1. "Channeling world surplus aluminum to areas where it is needed most. Such a program would make available an additional primary industrial material where lack of these materials has been the great obstacle to industrial development — without requiring a heavy capital investment in building new facilities. An entire cycle of industrial development could be shortened substantially.

2. "Possible collaboration between principal allies of the Free World. Canada, for example, might cooperate with the U. S. in setting up an international agency dedicated to the wise use of the common aluminum available to the U. S. and Canada in ways to benefit rather than injure the economy of the Free World.

3. "Regulations which would effectively limit imports from foreign suppliers in times of surplus in the U. S. as a means of offsetting the great advantage foreign producers have because of low wage costs. Such imports should bear some reasonable relationship to imports which have been customarily made from the same supplier in normal times and in times of scarcity. It is suggested that a reasonable approach would be to take in times of aluminum surplus, the percentage of capacity which the domestic industry is then operating as the standard. Negotiations between the U. S. and foreign governments for establishing regulations is recommended in preference to legislation.

4. "Study the possibility of anti-dumping legislation as practical and effective as the provisions of the current Canadian law.

5. "Complete collaboration between government and industry in combatting the Soviet economic offensive. Preparation of a military campaign requires military leaders; participation of business is equally essential in preparing to fight a war of trade."

Favorable Reaction—Aluminum fabricators and sellers on record that imports are a threat generally greeted the plan favorably. "It seems to be a good tentative approach," commented an aluminum seller.

However, there is still not general agreement. An aluminum warehouseman said producers were "a little off in the Never-never land," on some ideas. He suggested a more practical approach.

The consensus is that some points must be made clearer, particularly those which appear to call for control or advisory boards. "This could be an umbrella for just producers," was one comment.

Opposition Unmoved—Few formerly opposed to government intervention appear to have climbed the fence. A fabricator accused producers of "seizing everything possible to push a higher price."

The producers' point 3 drew some sharp criticism. "When aluminum is tight almost none is coming in. So if the industry is operating at 75 pct of capacity now; 75 pct of zero is zero," was one comment.

Representatives—Spokesman for the producers was R. S. Reynolds, president, Reynolds Metals Co. Also signing were Donovan Wilmot, Leon Hickman and Robert Learnard from Alcoa; C. J. Parkinson and Albert Wilkinson from Anaconda; Chad Calhoun and Ward Humphreys of Kaiser; Gordon Grant and Ralph Stohl from Olin - Mathieson; Charles Macfie from Revere; Joseph McConnell and Maxwell Caskie from Reynolds. Also present but not endorsing the program was Keith Linden, Harvey Aluminum Co.

Tin prices for the week: July 9—94.00; July 10—93.875; July 11—93.875; July 14—93.875; July 15—93.75.*

*Estimate.

Primary Prices

(cents per lb)	current price	last price	date of change
Aluminum pig	24.00	26.00	4/1/58
Aluminum ingot	26.10	28.10	4/1/58
Copper (E)	25-26.50	25.00	6/16/58
Copper (CS)	26.00	25.50	7/2/58
Copper (L)	25.00	27.00	1/13/58
Lead, St. L.	10.80	11.30	7/1/58
Lead, N. Y.	11.00	11.50	7/1/58
Magnesium ingot	36.00	34.00	8/13/56
Magnesium pig	35.25	33.75	8/13/56
Nickel	74.00	64.50	12/6/56
Titanium sponge	185-200	200-250	4/1/58
Zinc, E. St. L.	10.00	10.50	7/1/57
Zinc, N. Y.	10.50	11.00	7/1/57

ALUMINUM: 99% ingot frt allwd. **COPPER:** (E) = electrolytic, (CS) = custom smelters, electrolytic. (L) = lake. **LEAD:** common grade. **MAGNESIUM:** 99.8% pig Velasco, Tex. **NICKEL:** Port Colbourne, Canada. **ZINC:** prime western. **TIN:** see above; other primary prices, pg. 134.

MOLY NEWS

CLIMAX MOLYBDENUM CO. DIVISION • AMERICAN METAL CLIMAX, INC.

Climax Develops an Extremely Tough, Abrasion-resistant Chrome-Moly White Iron

New Alloy Proves Superior in Erosive Applications

A new martensitic white iron has proved exceptionally tough and resistant to abrasion. It's called Alloy 42. Its excellent combination of properties are related to its structure — which consists of hard chrome-moly carbides favorably distributed in a matrix of martensite plus retained austenite.

Tests indicate Alloy 42 is especially economical for parts subject to erosive wear: sand pumps, flotation impellers, sand classifier wear shoes, pug mill blades, brick mold liners and chute liners.

For example, heat-treated Alloy 42 impellers in a 5" sand pump handling coarsely ground taconite ore have already lasted over 1,000 hours. Previous impellers made of a 4.5% Ni, 1.5% Cr type of martensitic iron lasted only 350 to 400 hours.

Because of its toughness, Alloy 42 can also be used where moderate impacts would cause low alloy types of white iron to break or spall. And it may prove more economical than the soft rubber parts or linings now used in various abrasive applications. Its resistance to tearing by tramp coarse materials and chemical attacks by oils and other organic compounds is an obvious advantage.

The recommended composition range is: Carbon 3.00-3.50%; Silicon 0.30-0.60; Manganese 0.60-0.90; Chromium 15.0-18.0; Molybdenum 2.75-3.25.

A Climax bulletin on Alloy 42 discusses melting and casting, molds and shrinkage, heat treatment, structure, physical properties, machinability, welding and cutting. *For a free copy, circle #1 on the coupon.*

Heat Treating Improves the Wear Resistance of Gray Iron

Heat treating can improve many of the properties of gray iron, particularly resistance to wear. Wear resistance in quenched-and-tempered gray iron is many times greater than that of pearlitic irons. With cams and similar parts, hot quenching provides better wear resistance than quenching and hardening to the same hardness. Surface hardening is frequently selected for gray iron because it locally improves wear resistance with minimum distortion.

Why Moly Iron Bulletin #6 contains valuable information on surface hardening, annealing and stress-relieving molybdenum-alloyed irons. This bulletin gives examples of improvements obtained by heat treating gears, cable drums, pump-ring castings, tappets, valve guides and machine tool ways.

Flame hardening the teeth on a sprocket improves wear resistance with minimum distortion.

*For a free copy of **"Why Moly Iron Bulletin #6,"** circle #2 on the coupon.*

Tempering Low-Alloy Creep-Resistant Steels

A recent British paper discusses the roles of chromium, molybdenum and vanadium in low-alloy steels with high creep strength. The relation between creep properties, microstructure changes and carbide composition is given special attention.

*For a copy of **"The Tempering of Low-alloy Creep-resistant Steels Containing Chromium, Molybdenum and Vanadium"** by E. Smith and J. Nutting, circle #6.*

Moly Helps High Alloys Fight Corrosive Attacks

Highly alloyed materials are playing a greater part in combating corrosion. A current paper on these alloys considers the molybdenum-bearing alloys at length and also discusses cobalt-base alloys and silicon-bearing alloys.

*For copies of this paper, **"High Alloys to Combat Corrosion"** by E. D. Weisert, circle #7.*

Thermenol Shows Excellent Resistance to Heat, Corrosion

Thermenol, an iron-aluminum-molybdenum magnetic alloy, compares favorably with other high-temperature materials, and in some cases promises even better service. For unlike many alloys, it doesn't lose tensile strength rapidly up to 1200 F. It also has excellent resistance to oxidizing and sulfur-bearing atmospheres at high temperatures.

*For a copy of **"Iron-aluminum Magnetic Alloy Has Excellent Heat Resistance,"** circle #8.*

Moly in Nickel-base Casting Alloys Improves High Temperature Service

Molybdenum is helping at least two nickel-base alloys to work more effectively in high temperature applications. One of the alloys, with 5% Mo, combines good castability with very good creep strength at temperatures up to 1800 F (much better than that of moly-free alloys). The second, with 10% Mo, shows high resistance to thermal shock.

*For free copies of **"Some Properties of Nickel-base Casting Alloys for High-temperature Service"** by D. R. Wood and J. F. Gregg, circle #3.*

Cast Steels Studied at Low Temperatures

The British Steel Castings Research Association has completed new studies on the effect of melting practice, composition and treatment of steel castings. Five of the seven alloy steels investigated contained molybdenum. The benefits of using molybdenum in low alloy steel castings for low temperature service are clearly shown in comparisons of 1.5% Mn and 1.5% Mn-Mo.

*For reprints of **"The Low-temperature Impact Properties of Cast Steel"** by W. J. Jackson and G. M. Michie, circle #4.*

New Data Available on Low Carbon Bainitic Steels

Studies have been made on new steels based on boron-0.5% Mo. Tensile strengths up to 180,000 psi can now be obtained within the bainitic range with a wide range of cooling rates. Thus these low-carbon bainitic steels offer a good combination of mechanical properties as-rolled or as-air-cooled. These properties can be obtained in large sections because hardenability is high. Good welding properties and tempering characteristics make the steels especially suitable as high-strength weldable steels, forgings, die blocks, etc.

*For copies of **"Low-carbon Bainitic Steels"** by K. J. Irvine and F. B. Pickering, circle #5.*

Climax Molybdenum Co. Division, Dept. 2
American Metal Climax, Inc.
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NONFERROUS PRICES

MILL PRODUCTS

(Cents per lb unless otherwise noted)

ALUMINUM

(Base 30,000 lb, f.o.b. ship. pt., frt. allowed)

Flat Sheet (Mill Finish and Plate)

("F" temper except 6061-0)

Alloy	.032	.081	.136-.249	.250-3.
1100, 3003	44.6	42.3	41.1	41.7
5052	52.0	46.9	45.2	44.4
6061-0	49.4	45.0	43.2	43.1

Extruded Solid Shapes

Factor	6063 T-5	6062 T-6
6-8	45.0-46.8	58.4-62.1
12-14	45.7-47.2	59.3-63.8
24-26	49.0-49.5	70.1-74.8
36-38	58.0-58.6	94.2-97.8

Screw Machine Stock—2011-T-3

Size"	¼	⅜-⅝	⅝-1	1¼-1½
Price	61.0	60.5	59.0	56.6

Roofing Sheet, Corrugated

(Per sheet, 26" wide base, 16,000 lb)

Length"→	72	96	120	144
.019 gage	$1.411	$1.884	$2.353	$2.823
.024 gage	1.762	2.349	2.937	3.524

MAGNESIUM

(F.o.b. shipping Pt., carload frt. allowed)

Sheet and Plate

Type→ Gage→	.250 3.00	.250-2.00	.188	.081	.032
AZ31B Stand. Grade	.....	67.9	69.0	77.9	108.1
AZ31B Spec.	.....	93.3	95.7	108.7	171.3
Tread Plate	.....	70.6	71.7	.....	.....
Tooling Plate	73.0	.....	.....	.....	.....

Extruded Shapes

factor→	6-8	12-14	24-26	36-38
Comm. Grade. (AZ31C)	69.6	70.7	75.6	89.2
Spec. Grade... (AZ31B)	84.6	85.7	90.6	104.2

Alloy Ingot

AZ91B (Die Casting) ..... 37.25 (delivered)
AZ63A, AZ92A, AZ91C (Sand Casting) 40.75 (Velasco, Tex.)

NICKEL, MONEL, INCONEL

(Base prices, f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	126	106	128
Strip, CR	124	108	138
Rod, bar, HR	107	89	109
Angles, HR	107	89	109
Plates, HR	120	105	121
Seamless tube	157	129	200
Chot, blocks	...	87	...

COPPER, BRASS, BRONZE

(Freight included in 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	48.13	.....	45.36	48.32
Brass, 70/30	42.69	43.23	42.63	45.60
Brass, Low	44.90	45.44	44.84	47.71
Brass, R L	45.67	46.21	45.61	48.48
Brass, Naval	47.07	.....	41.38	50.48
Muntz Metal	45.19	.....	41.00	.....
Bomm. Bz.	46.98	47.52	46.92	49.54
Mang. Bz.	50.81	.....	44.91	.....
Phos. Bz. 5%	67.17	.....	67.67	.....

Free Cutting Brass Rod 31.03

TITANIUM

(Freight included in 5000 lbs)

Sheet and strip, commercially pure, $8.50-$10.10; alloy, $15.95; Plate, HR, commercially pure, $6.00-$6.75; alloy, $8.75-$9.50. Wire, rolled and/or drawn, commercially pure, $6.50-$7.00; alloy, $10.00-$11.50; Bar, HR or forged, commercially pure, $5.25-$5.50; alloy, $5.25-$6.35; billets, HR, commercially pure, $4.10-$4.35; alloy, $4.10-$4.20.

PRIMARY METAL

(Cents per lb unless otherwise noted)

Antimony, American, Laredo, Tex.. 29.50
Beryllium aluminum 5% Be, Dollar per lb contained Be $74.75
Beryllium copper, per lb conta'd Be. $43.00
Beryllium 97% lump or beads, f.o.b. Cleveland, Reading $71.50
Bismuth, ton lots ..... $ 2.25
Cadmium, del'd ..... $ 1.55
Calcium, 99.9% small lots ..... $ 4.55
Chromium, 99.8% metallic basis... $ 1.31
Cobalt, 97-99% (per lb).... $2.00 to $2.07
Germanium, per gm, f.o.b. Miami, Okla., refined ..... 39.50 to 50.00
Gold, U. S. Treas., per troy oz..... $35.00
Indium, 99.9%, dollars per troy oz.. $ 2.25
Iridium, dollars per troy oz..... $70 to $80
Lithium, 98% ..... $11.00 to $14.00
Magnesium, sticks, 100 to 500 lb.... 59.00
Mercury, dollars per 76-lb flask, f.o.b. New York ..... $228 to $231
Nickel oxide sinter at Cooper Cliff, Ont., contained nickel 71.25
Palladium, dollars per troy oz... $19 to $21
Platinum, dollars per troy oz... $62 to $70
Rhodium ..... $120.00 to $125.00
Silver ingots (¢ per troy oz.) 88.625
Thorium, per kg. $43.00
Vanadium ..... $ 3.45
Zirconium sponge ..... $ 5.00

Remelted Metals

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5 ingot
No. 115 ..... 27.00
No. 120 ..... 26.25
No. 123 ..... 25.75
80-10-10 ingot
No. 305 ..... 31.25
No. 315 ..... 29.25
88-10-2 ingot
No. 210 ..... 38.25
No. 215 ..... 34.00
No. 245 ..... 30.75
Yellow ingot
No. 405 ..... 22.75
Manganese bronze
No. 421 ..... 24.50

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
0.30 copper max. 24.00-24.25
0.60 copper max. 23.75-24.00
Piston alloys (No. 122 type)... 23.25-24.25
No. 12 alum. (No. 2 grade)... 21.00-21.75
108 alloy 21.50-22.25
195 alloy 24.00-25.50
13 alloy (0.60 copper max.)... 23.75-24.00
AXS-679 (1 pct zinc) 21.25-22.25

(Effective July 14, 1958)

Steel deoxidizing aluminum notch bar granulated or shot

Grade 1—95-97½% 22.00-23.50
Grade 2—92-95% 21.00-21.75
Grade 3—90-92% 20.00-20.75
Grade 4—85-90% 17.00-18.00

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	21	20¼
Yellow brass	16⅛	14⅛
Red brass	18⅝	17⅞
Comm. bronze	19¼	18½
Mang. bronze	14⅞	14⅛
Yellow brass rod ends	15⅞	

Customs Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 21⅝
No. 2 copper wire 20½
Light copper 18
*Refinery brass 20½
Copper bearing material 19⅛
*Dry copper content.

Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 22
No. 2 copper wire 20½
Light copper 18
No. 1 composition 19
No. 1 comp turnings 18½
Hvy. yellow brass solids 13⅜
Brass pipe 14⅝
Radiators 15¼

Aluminum

Mixed old cast. ..... 12 —12½
Mixed new clips ..... 14½—15
Mixed turnings, dry ..... 12½—13

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass

No. 1 copper wire ..... 19½—20
No. 2 copper wire ..... 17½—18
Light copper ..... 15½—16
Auto radiators (unsweated). 11½—12
No. 1 composition ..... 15½—16
No. 1 composition turnings.. 14½—15
Cocks and faucets ..... 12½—13
Clean heavy yellow brass ... 10¾—11¼
Brass pipe ..... 13 —13¼
New soft brass clippings .... 13¼—13⅝
No. 1 brass rod turnings .... 11 —11¼

Aluminum

Alum. pistons and struts .... 5 — 5½
Aluminum crankcases ..... 9 — 9½
1100 (2S) aluminum clippings 12½—13
Old sheet and utensils ..... 9 — 9½
Borings and turnings ..... 6 — 6½
Industrial castings ..... 9 — 9½
2024 (24S) clippings ..... 10½—11

Zinc

New zinc clippings ..... 4 — 4½
Old zinc ..... 3 — 3⅜
Zinc routings ..... 1¾— 2
Old die cast scrap ..... 1½— 1¾

Nickel and Monel

Pure nickel clippings 42-45
Clean nickel turnings 37-40
Nickel anodes 42-45
Nickel rod ends 42-45
New Monel clippings 28-29
Clean Monel turnings 20-23
Old sheet Monel 25-26
Nickel silver clippings, mixed. 18
Nickel silver turnings, mixed 15

Lead

Soft scrap lead ..... 6¾— 7
Battery plates (dry) ..... 2¼— 2½
Batteries, acid free ..... 1½— 1¾

Miscellaneous

Block tin ..... 75 —76
No. 1 pewter ..... 59 —60
Auto babbitt ..... 39 —40
Mixer common babbitt ..... 9½—10
Solder joints ..... 13¼—13¾
Siphon tops 42
Small foundry type ..... 10½—10¾
Monotype ..... 10¼—10½
Lino. and stereotype ..... 9¼— 9½
Electrotype ..... 8¼— 8½
Hand picked type shells .... 6¼— 6¾
Lino. and stereo. dross ..... 2¼— 2½
Electro dross ..... 1¾— 2

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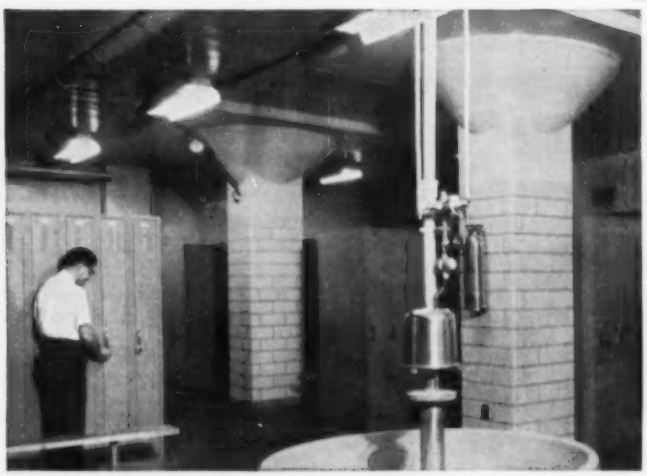

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IRON AGE

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BILLETS, BLOOMS, SLABS			PILING	SHAPES STRUCTURALS			STRIP					
		Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled
EAST	Bethlehem, Pa.			$114.00 *B3*		5.325 *B3*	7.80 *B3*	5.325 *B3*						
	Buffalo, N. Y.	$77.50 *R3, B3*	$96.00 *R3, B3*	$114.00 *R3, B3*	6.225 *B3*	5.325 *B3*	7.80 *B3*	5.325 *B3*	4.925 *R3, B3*	7.15 *S10*	7.325 *B3*			
	Phila., Pa.									7.70 *P15*				
	Harrison, N. J.													15.05 *C11*
	Conshohocken, Pa.		$101.00 *A2*	$121.00 *A2*					4.975 *A2*		7.325 *A2*			
	New Bedford, Mass.									7.60 *R6*				
	Johnstown, Pa.	$77.50 *B3*	$96.00 *B3*	$114.00 *B3*		5.325 *B3*	7.80 *B3*							
	Boston, Mass.									7.70 *T8*				15.40 *T8*
	New Haven, Conn.									7.60 *D1*				
	Baltimore, Md.									7.15 *T8*				
	Phoenixville, Pa.					5.325 *P2*		5.325 *P2*						
	Sparrows Pt., Md.								4.925 *B3*		7.325 *B3*			
	New Britain, Bridgeport, Wallingford, Conn.			$114.00 *N8*						7.60 *W1,S7*				
	Pawtucket, R. I. Worcester, Mass.									7.70 *N7* 7.70 *A5*				15.40 *N7* 15.20 *T8*
MIDDLE WEST	Alton, Ill.								5.125 *L1*					
	Ashland, Ky.								4.925 *A7*					
	Canton-Massillon, Dover, Ohio		$98.50 *R3*	$114.00 *R3, T5*						7.15 *G4*		10.45 *G4*		14.85 *C11*
	Chicago, Ill. Franklin Park, Ill. Evanston, Ill.	$77.50 *U1, R3*	$96.00 *U1, R3,W8*	$114.00 *U1, R3,W8*	6.225 *U1*	5.275 *U1, W8,P13*	7.75 *U1,Y1 W8*	5.275 *U1*	4.925 *W8, N4,A1*	7.25 *A1,T8 M8*			8.10 *W8, S9,13*	15.05 *A1, S9,G4*
	Cleveland, Ohio									7.15 *A5,J3*		10.45 *A5*	8.10 *J3*	
	Detroit, Mich.			$114.00 *R5*					4.925 *G3, M3*	7.15 *M2,D1, D2,G3,P11*	7.325 *G3*	10.00 *D2* 10.50 *G3*	8.10 *G3*	15.05 *G3*
	Anderson, Ind.									7.15 *G4*				
	Duluth, Minn.													
	Gary, Ind. Harbor, Indiana	$77.50 *U1*	$96.00 *U1*	$114.00 *U1, Y1*		5.275 *U1, I3*	7.75 *U1, I3*	5.275 *I3*	4.925 *U1, I3,Y1*	7.15 *Y1*	7.325 *U1, I3,Y1*	10.60 *Y1*	8.10 *U1, Y1*	
	Sterling, Ill.	$77.50 *N4*				5.275 *N4*			5.025 *N4*					
	Indianapolis, Ind.									7.30 *J3*				15.20 *J3*
	Newport, Ky.												8.10 *A9*	
	Middletown, Ohio													
	Niles, Warren, Ohio Sharon, Pa.		$96.00 *S1, C10*	$114.00 *C10,S1*					4.925 *R3, S1*	7.15 *R3,T4 S1*	7.325 *R3, S1*	10.50 *S1* 10.45 *R3*	8.10 *S1*	15.05 *S1*
	Owensboro, Ky.	$77.50 *G5*	$96.00 *G5*	$114.00 *G5*										
	Pittsburgh, Pa. Midland, Pa. Butler, Pa. Aliquippa, Pa.	$77.50 *U1, P6*	$96.00 *U1, C11,P6*	$114.00 *U1, C11,B7*	6.225 *U1*	5.275 *U1, J3*	7.75 *U1, J3*	5.275 *U1*	4.925 *P6*	7.15 *J3,B4*			8.10 *S9*	15.05 *S9*
	Weirton, Wheeling, Follansbee, W. Va.				6.225 *W3*	5.275 *W3*		5.275 *W3*	4.925 *W3*	7.15 *W3,F3*	7.325 *W3*	10.50 *W3*		
	Youngstown, Ohio	$77.50 *R3*	$96.00 *Y1, C10*	$114.00 *Y1*			7.75 *Y1*			7.15 *Y1,J3*	7.325 *U1, Y1*	10.65 *Y1*	8.10 *U1, Y1*	15.05 *J3* 10.65 *Y1*
WEST	Fontana, Cal.	$88.00 *K1*	$105.50 *K1*	$135.00 *K1*		6.075 *K1*	8.55 *K1*	6.225 *K1*	5.675 *K1*	9.00 *K1*				
	Geneva Utah		$96.00 *C7*			5.275 *C7*	7.75 *C7*							
	Kansas City, Mo.					5.375 *S2*	7.85 *S2*						8.35 *S2*	
	Los Angeles, Torrance, Cal.		$105.50 *B2*	$134.00 *B2*		5.975 *C7, B2*	8.45 *B2*		5.675 *C7, B2*	9.05 *J3* 9.20 *C1*			9.30 *B2*	17.25 *J3*
	Minnequa, Colo.					5.575 *C6*			6.025 *C6*	9.10 *K1*				
	Portland, Ore.					6.025 *O2*								
	San Francisco, Niles, Pittsburg, Cal.		$105.50 *B2*			5.925 *B2*	8.40 *B2*		5.675 *C7, B2*					
	Seattle, Wash.		$109.50 *B2*			6.025 *B2*	8.50 *B2*		5.925 *B2*					
SOUTH	Atlanta, Ga.					5.475 *A8*			4.925 *A8*					
	Fairfield, Ala. City, Birmingham, Ala.	$77.50 *T2*	$96.00 *T2*			5.275 *T2, R3,C16*	7.75 *T2*		4.925 *T2, R3,C16*		7.325 *T2*			
	Houston, Lone Star, Texas		$101.00 *S2*	$119.00 *S2*		5.375 *S2*	7.85 *S2*						8.35 *S2*	

(Effective July 14, 1958)

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		SHEETS								WIRE ROD	TINPLATE†		BLACK PLATE
		Hot-rolled *18* ga. & hvyr.	Cold-rolled	Galvanized	Enameling	Long Terne	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.		Cokes* *1.25*-lb. base box	Electro* *0.25*-lb. base box	Holloware Enameling *29* ga.
EAST	Bethlehem, Pa.												
	Buffalo, N. Y.	4.925 *B3*	6.05 *B3*				7.275 *B3*	8.975 *B3*		6.15 *W6*	† Special coated mfg. terne deduct 50¢ from 1.25-lb. coke base box price. Can-making quality blackplate 55 to 128 lb. deduct $2.20 from 1.25 lb. coke base box. * COKES: 1.50-lb. add 25¢. ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add $1.00. Differential 1.00 lb./0.25 lb. add 65¢.		
	Claymont, Del.												
	Coatesville, Pa.												
	Conshohocken, Pa.	4.975 *A2*	6.10 *A2*				7.325 *A2*						
	Harrisburg, Pa.												
	Hartford, Conn.												
	Johnstown, Pa.									6.15 *B3*			
	Fairless, Pa.	4.975 *U1*	6.10 *U1*				7.325 *U1*	9.025 *U1*			$10.15 *U1*	$8.85 *U1*	
	New Haven, Conn.												
	Phoenixville, Pa.												
	Sparrows Pt., Md.	4.925 *B3*	6.05 *B3*	6.60 *B3*			7.275 *B3*	8.975 *B3*	9.725 *B3*	6.25 *B3*	$10.15 *B3*	$8.85 *B3*	
	Worcester, Mass.									6.45 *A5*			
	Trenton, N. J.												
MIDDLE WEST	Alton, Ill.									6.35 *L1*			
	Ashland, Ky	4.925 *A7*		6.60 *A7*	6.625 *A7*								
	Canton-Massillon, Dover, Ohio			6.60 *R3, R1*									
	Chicago, Joliet, Ill.	4.925 *W8, A1*					7.275 *U1*			6.15 *A5, R3,W8, N4, K2*			
	Sterling, Ill.									6.25 *N4, K2*			
	Cleveland, Ohio	4.925 *R3, J3*	6.05 *R3, J3*		6.625 *R3*		7.275 *R3, J3*	8.975 *R3, J3*		6.15 *A5*			
	Detroit, Mich.	4.925 *G3, M2*	6.05 *G3 M2*				7.275 *G3*	8.975 *G3*					
	Newport, Ky	4.925 *A1*	6.05 *A1*										
	Gary, Ind. Harbor, Indiana	4.925 *U1, I3,Y1*	6.05 *U1, I3,Y1*	6.60 *U1, I3*	6.625 *U1, I3,Y1*	7.00 *U1*	7.275 *U1, Y1,I3*	8.975 *U1, Y1*		6.15 *Y1*	$10.05 *U1, Y1*	$8.75 *I3, U1,Y1*	7.50 *U1, Y1*
	Granite City, Ill.	5.025 *G2*	6.15 *G2*	6.70 *G2*	6.725 *G2*							$8.85 *G2*	7.60 *G2*
	Kokomo, Ind.			6.70 *C9*						6.25 *C9*			
	Mansfield, Ohio		6.05 *E2*			7.00 *E2*							
	Middletown, Ohio		6.05 *A7*	6.60 *A7*	6.625 *A7*	7.00 *A7*							
	Niles, Warren, Ohio Sharon, Pa.	4.925 *R3, N3,S1*	6.05 *R3*	6.60 *R3*	6.625 *N3, S1*	7.00 *N3, S1,R3*	7.275 *R3*	8.975 *S1, R3*				$8.75 *R3*	
	Pittsburgh, Pa. Midland, Pa. Butler, Pa. Donora, Pa. Aliquippa, Pa.	4.925 *U1, J3,P6*	6.05 *U1, J3,P6*	6.60 *U1, J3*	6.625 *U1*		7.275 *U1, J3*	8.975 *U1, J3*	9.725 *U1*	6.15 *A5, J3,P6*	$10.05 *U1, J3*	$8.75 *U1, J3*	7.50 *U1, J3*
	Portsmouth, Ohio	4.925 *P7*	6.05 *P7*							6.15 *P7*			
	Weirton, Wheeling, Follansbee, W. Va.	4.925 *W3, W5*	6.05 *W3, F3,W5*	6.60 *W3, W5*		7.00 *W3, W5*	7.275 *W3*	8.975 *W3*			$10.05 *W5, W3*	$8.75 *W5, W3*	7.50 *W5*
	Youngstown, Ohio	4.925 *U1, Y1*	6.05 *Y1*		6.625 *Y1*		7.275 *Y1*	8.975 *Y1*		6.15 *Y1*			
WEST	Fontana Cal.	5.675 *K1*	7.30 *K1*				8.025 *K1*	10.275 *K1*			$10.80 *K1*	$9.50 *K1*	
	Geneva, Utah	5.825 *C7*											
	Kansas City, Mo.									6.40 *S2*			
	Los Angeles, Torrance, Cal.									6.95 *B2*			
	Minnequa, Colo.									6.40 *C6*			
	San Francisco, Niles, Pittsburgh, Cal.	5.625 *C7*	7.00 *C7*	7.35 *C7*						6.95 *C7*	$10.80 *C7*	$9.50 *C7*	
	Seattle, Wash.												
SOUTH	Atlanta, Ga.												
	Fairfield, Ala. Alabama City, Ala.	4.925 *T2, R3*	6.05 *T2, R3*	6.60 *T2, R3*	6.625 *T2*					6.15 *T2, R3*	$10.15 *T2*	$8.85 *T2*	
	Houston, Tex.									6.40 *S2*			

(Effective July 14, 1958)

IRON AGE

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BARS						PLATES				WIRE
		Carbon† Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfrs'. Bright
EAST	Bethlehem, Pa.				6.475 *B3*	8.775 *B3*	7.925 *B3*					
	Buffalo, N. Y.	5.425 *R3,B3*	5.425 *R3,B3*	7.35 *B5*	6.475 *B3,R3*	8.775 *B3,B5*	7.925 *B3*	5.10 *B3*		7.20 *B3*		7.65 *W6*
	Claymont, Del.							5.10 *C4*		7.20 *C4*	7.625 *C4*	
	Coatesville, Pa.							5.10 *L4*		7.20 *L4*	7.625 *L4*	
	Conshohocken, Pa.							5.10 *A2*	6.175 *A2*	7.20 *A2*	7.625 *A2*	
	Harrisburg, Pa.							5.10 *P2*	6.275 *P2*			
	Milton, Pa.	5.575 *M7*	5.575 *M7*									
	Hartford, Conn.			7.80 *R3*		9.075 *R3*	7.925 *B3*					
	Johnstown, Pa.	5.425 *B3*	5.425 *B3*		6.475 *B3*			5.10 *B3*		7.20 *B3*	7.625 *B3*	7.65 *B3*
	Fairless, Pa.	5.575 *U1*	5.575 *U1*		6.625 *U1*							
	Newark, N. J. Camden, N. J.			7.75 *W10* 7.75 *P10*		8.95 *W10* 8.95 *P10*						
	Bridgeport, Conn. Putnam, Conn. Willimantic, Conn.			7.85 *W10* 7.90 *J3*	6.55 *N8*	8.925 *N8*						
	Sparrows Pt., Md.		5.425 *B3*					5.10 *B3*		7.20 *B3*	7.625 *B3*	7.75 *B3*
	Palmer, Worcester, Readville, Mass. Mansfield, Mass.			7.85 *B5,C14*		9.075 *A5,B5*						7.95 *A5, W6*
	Spring City, Pa.			7.75 *K4*		8.95 *K4*						
MIDDLE WEST	Alton, Ill.	5.625 *L1*										7.85 *L1*
	Ashland, Newport, Ky.							5.10 *A7,A1*		7.20 *A1*		
	Canton, Massillon, Ohio	5.90* *R3*		7.30 *R3,R2*	6.475 *R3,T5*	8.775 *R3,R2, T5*						
	Chicago, Joliet, Waukegan, Ill. Harvey, Ill.	5.425 *U1,R3, W8,N4,P13*	5.425 *U1,R3, N4,P13*	7.30 *A5, W10,W8 B5,L2,N9*	6.475 *U1,R3, W8*	8.775 *A5, W10,W8 L2,N8,B5*	7.925 *U1,W8*	5.10 *U1,A1, W8,13*	6.175 *U1*	7.20 *U1,W8*	7.625 *U1,W8*	7.65 *A5,R3, W8,N4, K2,W7*
	Cleveland, Ohio Elyria, Ohio	5.425 *R3*	5.425 *R3*	7.30 *A5,C13 C18*		8.775 *A5, C13, C18*	7.925 *R3*	5.20 *R3,J3*	6.175 *J3*		7.625 *R3, J3*	7.65 *A5, C13*
	Detroit, Mich.	5.425 *G3*	5.425 *G3*	7.55 *P3* 7.50 *P8,B5*	6.475 *R5 G3*	8.775 *R5* 8.975 *B5,P3, P8*	7.925 *G3*	5.10 *G3*		7.20 *G3*	7.625 *G3*	
	Duluth, Minn.											7.65 *A5*
	Gary, Ind. Harbor, Crawfordsville, Hammond, Ind.	5.425 *U1,I3, Y1*	5.425 *U1,I3, Y1*	7.30 *R3,J3*	6.475 *U1,I3, Y1*	8.775 *R3,M4*	7.925 *U1, Y1*	5.10 *U1,I3, Y1*	6.175 *J3,I3*	7.20 *U1,Y1*	7.625 *U1, Y1,I3*	7.75 *M4*
	Granite City, Ill.							5.20 *G2*				
	Kokomo, Ind		5.525 *C9*									7.75 *C9*
	Sterling, Ill.	5.525 *N4*	5.525 *N4*					5.10 *N4*				7.75 *K2*
	Niles, Warren, Ohio Sharon, Pa.			7.30 *C10*	6.475 *C10,S1*	8.775 *C10*	7.925 *S1*	5.10 *R3,S1*		7.20 *S1*	7.625 *R3, S1*	
	Owensboro, Ky.	5.425 *G5*			6.475 *G5*							
	Pittsburgh, Midland, Donora, Aliquippa, Pa.	5.425 *U1,J3*	5.425 *U1,J3*	7.30 *A5,B4, R3,J3,C11, W10,S9,C8*	6.475 *U1,J3, C11,B7*	8.775 *A5, W10,R3,S9, C11,C8*	7.925 *U1,J3*	5.10 *U1,J3*	6.175 *U1*	7.20 *U1,J3, B7*	7.625 *U1,J3, B7*	7.65 *A5, J3,P6*
	Portsmouth, Ohio											7.65 *P7*
	Weirton, Wheeling, Follansbee, W. Va.							5.10 *W5*				
	Youngstown, Ohio	5.425 *U1,R3, Y1*	5.425 *U1,R3, Y1*	7.30 *A5,Y1, F2*	6.475 *U1,Y1*	8.775 *Y1,F2*	7.925 *U1,Y1*	5.10 *U1,R3, Y1*		7.20 *Y1*	7.625 *U1, R3,Y1*	7.65 *Y1*
WEST	Emeryville, Cal. Fontana, Cal.	6.175 *J5* 6.125 *K1*	6.175 *J5* 6.125 *K1*		7.525 *K1*		8.625 *K1*	5.90 *K1*		8.00 *K1*	8.425 *K1*	
	Geneva, Utah							5.10 *C7*			7.625 *C7*	
	Kansas City, Mo.	5.675 *S2*	5.675 *S2*		6.725 *S2*		8.175 *S2*					7.90 *S2*
	Los Angeles, Torrance, Cal.	6.125 *C7,B2*	6.125 *C7,B2*	8.75 *R3,P14*	7.525 *B2*	10.75 *P14*	8.625 *B2*					8.60 *B2*
	Minnequa, Colo.	5.875 *C6*	5.875 *C6*					5.95 *C6*				7.90 *C6*
	Portland, Ore.	6.175 *O2*	6.175 *O2*									
	San Francisco, Niles, Pittsburg, Cal	6.125 *C7* 6.175 *B2*	6.125 *C7* 6.175 *B2*				8.675 *B2*					8.60 *C7,C6*
	Seattle Wash.	6.175 *B2,N6*	6.175 *B2*				8.675 *B2*	6.00 *B2*		8.10 *B2*	8.525 *B2*	
SOUTH	Atlanta, Ga.	5.625 *A8*	5.425 *A8*									7.65 *A8*
	Fairfield, Ala. City, Birmingham, Ala.	5.425 *T2,R3, C16*	5.425 *T2,R3, C16*	7.90 *C16*			7.925 *T2*	5.10 *T2,R3*			7.625 *T2*	7.65 *T2,R3*
	Houston, Ft. Worth, Lone Star, Tex.	5.675 *S2*	5.675 *S2*		6.725 *S2*		8.175 *S2*	5.20 *S2* 5.20 *L3*		7.30 *S2*	7.725 *S2*	7.90 *S2*

* Special Quality (Effective July 14, 1958) † Merchant Quality—Special Quality 35¢ higher.

STEEL PRICES

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angel Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A9 Acme-Newport Steel Co., Newport, Ky.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.
B6 Brook Plant, Wickwire-Spencer Steel Div., Birdsboro, Pa.
B7 A. M. Byers, Pittsburgh
B8 Braeburn Alloy Steel Corp., Braeburn, Pa.

C1 Calstrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C3 Central Iron & Steel Co., Harrisburg, Pa.
C4 Claymont Products Dept., Claymont, Del.
C5 Colorado Fuel & Iron Corp., Denver
C7 Columbia Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Pittsburgh, Pa.
C11 Crucible Steel Co. of America, Pittsburgh
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shafting Co., Readville, Mass.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Div., Birmingham
C17 Chester Blast Furnace, Inc., Chester, Pa.
C18 Cold Drawn Steel Plant, Western Automatic Machine Screw Co., Elyria, O.

D1 Detroit Steel Corp., Detroit
D2 Dearborn Div., Sharon Steel Corp.
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire Steel Co., Mansfield, O.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit
G4 Greer Steel Co., Dover, O.
G5 Green River Steel Corp., Owenboro, Ky.

H1 Hanna Furnace Corp., Detroit

I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Cal.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.
K4 Keystone Drawn Steel Co., Spring City, Pa.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M6 Mystic Iron Works, Everett, Mass.
M7 Milton Steel Products Div., Milton, Pa.
M8 Mill Strip Products Co., Evanston, Ill.

N1 National Supply Co., Pittsburgh
N2 National Tube Div., Pittsburgh
N3 Niles Rolling Mill Div., Niles, O.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle
N7 Newman Crosby Steel Co., Pawtucket, R. I.
N8 Carpenter Steel of New England, Inc., Bridgeport, Conn.
N9 Nelson Steel & Wire Co.

O1 Oliver Iron & Steel Co., Pittsburgh
O2 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.
P11 Production Steel Strip Corp., Detroit
P13 Phoenix Mfg. Co., Joliet, Ill.
P14 Pacific Tube Co.
P15 Philadelphia Steel and Wire Corp.

R1 Reeves Steel & Mfg. Co., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 J. & L. Steel Co., Stainless Div.
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y.

S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Div., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw and Steel Co., Fitchburg, Mass.
S5 Sweet's Steel Co., Williamsport, Pa.
S6 Standard Forging Corp., Chicago
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Div. of Copperweld Steel Co., Carnegie, Pa.
S10 Seneca Steel Service, Buffalo
S11 Southern Electric Steel Co., Birmingham

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T7 Texas Steel Co., Fort Worth
T8 Thompson Wire Co., Boston

U1 United States Steel Corp., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3 Ulbrich Stainless Steels, Wallingford, Conn.
U4 U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago
W8 Wisconsin Steel Div., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh
W12 Wallace Barnes Steel Div., Bristol, Conn.

Y1 Youngstown Sheet & Tube Co., Youngstown, O.

PIPE AND TUBING — **Base discounts (pct) f.o.b. mills. Base price about $280 per net ton.**

	BUTTWELD														SEAMLESS							
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½-3 In.		2 In.		2½ In.		3 In.		3½-4 In.	
STANDARD T. & C.	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**
Sparrows Pt. *B3*	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50								
Youngstown *R3*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Fontana *K1*	+8.25	+23.5	+5.25	+19.5	+1.75	+15.00	0.75	+14.25	1.25	+13.25	1.75	+12.75	3.25	+13.00								
Pittsburgh *J3*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
Alton, Ill. *L1*	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50								
Sharon *M3*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Fairless *N2*	3.25	+12.0	6.25	+8.0	9.75	+3.50	12.25	+2.75	12.75	+1.75	13.25	+1.25	14.75	+1.50								
Pittsburgh *N1*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
Wheeling *W5*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Wheatland *W4*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50								
Youngstown *Y1*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
Indiana Harbor *Y1*	4.25	+11.0	7.25	+7.0	10.75	+2.50	13.25	+1.75	13.25	+0.75	14.25	+0.25	15.75	+1.00								
Lorain *N2*	5.25	+10.0	8.25	+6.0	11.75	+1.50	14.25	+0.75	14.75	0.25	15.25	0.75	16.75	0.50	*9.25	+24.25	*2.75	+19.50	*0.25	+17.0	1.25	+15.50
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50								
Youngstown *R3*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Fairless *N2*	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50								
Fontana *K1*	+3.75		9.25		3.25		3.75		4.25		4.75		5.25									
Pittsburgh *J3*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50
Alton, Ill. *L1*	7.75	+6.0	11.75	+2.0	14.75	2.50	15.25	1.25	15.75	2.25	16.25	2.75	16.75	1.50								
Sharon *M3*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Pittsburgh *N1*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50
Wheeling *W5*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Wheatland *W4*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50								
Youngstown *Y1*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50
Indiana Harbor *Y1*	8.75	+5.0	12.75	+1.0	15.75	3.50	16.25	2.25	16.75	3.25	17.25	3.75	17.75	2.50								
Lorain *N2*	9.75	+4.0	13.75	list	16.75	4.50	17.25	3.25	17.75	4.25	18.25	4.75	18.75	3.50	*7.75	+21.75	*0.25	+16.0	2.25	+13.50	7.25	+8.50

* Threads only, buttweld and seamless 2½ pt. higher discount. Plain ends, buttweld and seamless, 3-in. and under, 5½ pt. higher discount.
Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ⅜, ¾ and 1-in., 2 pt.; 1¼, 1½ and 2-in., 1½ pt.; 2½ and 3-in., 1 pt., e.g., zinc price range of over 13¢ to 15¢ would lower discounts on 2½ and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 10¢ per lb.

(Effective July 14, 1958)

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots for minus 100 mesh

Swedish sponge iron, del. East of Miss. River, ocean bags, 23,000 lb. and over ..... 10.5¢
F.O.B. Riverton or Camden, New Jersey, west of Miss. River .... 9.5¢
Domestic sponge iron, 98+% Fe, 23,000 lb. and over del'd East of Miss. River ..... 10.5¢
F.O.B. Riverton, New Jersey, West of Miss. River ..... 9.5¢
Canadian sponge iron, del'd in East, carloads ..... 10.5¢
Atomized iron powder, 98% + Fe, 40 mesh,, F.O.B. Easton, Pa., in 100 lb bags ..... 7.7¢
Atomized iron powder, 98% + Fe, F.O.B. Easton, Pa., in 100 lb. bags. Freight allowed east of Miss. River..... 10.5¢
Atomized iron powder, 98% + Fe. Cutting and scarfing grade, F.O.B. Easton, Pa. ..... 8.5¢
Electrolytic iron, annealed, imported 99.5+% Fe .... 27.5¢
domestic 99.5+% Fe .... 36.5¢
Electrolytic iron, unannealed minus 325 mesh, 99+% Fe 57.0¢
Electrolytic iron melting stock, 99.84% pure ..... 27.0¢
Carbonyl iron size 3 to 20 micron, 98%, 99.8+% Fe.. 88.0¢ to $2.85
Aluminum, freight allowed.. 38.00¢
Brass, 10 ton lots ..... 31.1¢ to 47.1¢
Copper, electrolytic ..... 41.50¢
Copper, reduced ..... 40.3¢ to 48.8¢
Cadmium, 100-199 lb. 95¢ plus metal value
Chromium, electrolytic, 99.85% min. Fe. 03 max. Del'd ... $5.00
Lead, f.o.b. Hammond, Ind. . 19¢
Manganese f.o.b. Extron, Pa. 46.0¢
Molybdenum, 99% ..... $3.60 to $3.95
Nickel, chemically precipitated $1.05
Nickel, unannealed $1.00
Nickel, annealed $1.06
Nickel, spherical, unannealed #80 ..... $1.13
Silicon ..... 43.50¢
Solder powder ..... 13¢ plus met. value
Stainless steel, 302 ..... $1.02
Stainless steel, 316 ..... $1.30
Tin ..... 14.00¢ plus metal value
Tungsten, 99% (65 mesh) $3.15 (nominal)
Zinc, 5000 lb & over..... 17.5¢ to 30.7¢

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

Machine and Carriage Bolts	Full Container Price	30 Containers	20,000 Lb.	40,000 Lb.
	Pct. Discounts			
½" and smaller x 6" and shorter	40	54	56	57
⅝" thru 1" x longer than 6"	35	40	43	45
Rolled thread carriage bolts ½" & smaller x 6" and shorter	40	54	56	57
Lag, all diam. x 6" & shorter	40	54	56	57
Lag, all diam. longer than 6 in.	39	44½	47	48½
Plow bolts, ½" and smaller x 6" and shorter	40	54	56	57

(Add 25 pct for broken case quantities)

	Full case or Keg price
Nuts, Hex, HP reg. & hvy.	
¾ in. or smaller	60½
⅞ in. to 1 in. inclusive	55½
1⅛ in. to 1½ in. inclusive	58½
1⅝ in. and larger	53½
C. P. Hex, reg. & hvy.	
¾ in. and smaller	60½
⅞ in. to 1½ in. inclusive	55½
1⅝ in. and larger	53½
Hot Galv. Hex Nuts (All Types)	
¾ in. and smaller	46½
Semi-finished Hex Nuts	
⅝ in. or smaller	60½
¾ in. to 1½ in. inclusive	55½
1⅝ in. and larger	53½

(Add 25 pct for broken case or keg quantities)

Finished
⅞ in. and smaller 63

Rivets

	Base per 100 lb
½ in. and larger	$12.25
	Pct. Off List
7/16 in. and smaller	19

Cap Screws *Discount (Packages)*

	Full Finished H. C. Heat Treat	
New std. hex head, packaged		
⅝" diam. and smaller x 6" and shorter	40	26
¾", ⅞", and 1" diam. x 6" and shorter	22	8
⅝" diam. and smaller x longer than 6"	8	+13
¾", ⅞", and 1" diam. x longer than 6"	+ 6	+32
	C-1018 Steel Full-Finished Cartons	Bulk
¼" through ⅝" dia. x 6" and shorter	58	49
¾" through 1" dia. x 6" and shorter	45	33

Minimum quantity—¼" through ⅝" diam., 15,000 pieces; 1/16" through ⅝" diam., 5,000 pieces; ¾" through 1" diam., 2,000 pieces.

Machine Screws & Stove Bolts

	Quantity	Discount Mach. Screws	Stove Bolts
Plain Finish Cartons		60	60
Bulk			
To ¼" diam. incl.	25,000-and over	60	..
5/16 to ½" diam. incl.	15,000-200,000	60	..

Machine Screws & Stove Bolt Nuts

	Quantity	Discount Hex	Square
In Cartons		16	19
In Bulk			
⅜" diam. & smaller	25,000 and over	14	16

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, frt allowed in quantity)

Copper
Rolled elliptical, 18 in. or longer, 5000 lb lots 40.00
Electrodeposited 31.25
Brass, 80-20, ball anodes, 2000 lb or more 44.00
Zinc, ball anodes, 2000 lb lots 16.00
(for elliptical add 1¢ per lb)
Nickel, 99 pct plus, rolled carbon, 5000 lb 1.0225
(Rolled depolarized add 3¢ per lb)
Cadmium 1.55
Tin, ball anodes $1.13 per lb (approx.).

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum 68.70
Copper sulphate, 100 lb bags, per cwt. 22.15
Nickel salts, single, 100 lb bags.... 40.50
Nickel chloride, freight allowed, 300 lb 48.50
Sodium cyanide, domestic, f.o.b. N. Y., 200 lb drums 24.05
(Philadelphia price 24.50)
Zinc cyanide, 100 lb 60.75
Potassium cyanide, 100 lb drum N. Y. 48.00
Chromic acid, flake type, 10,000 lb or more 31.00

CAST IRON WATER PIPE INDEX

Birmingham 125.8
New York 138.7
Chicago 140.9
San Francisco-L. A. 148.6

Dec. 1955, value, Class B or heavier 5 in. or larger, bell and spigot pipe. Explanation: p. 57, Sept. 1, 1955, issue. Source: U. S. Pipe and Foundry Co.

WAREHOUSES

Metropolitan Price, dollars per 100 lb.

Cities	City Delivery‡ Charge	Sheets: Hot-Rolled (18 ga. & hvr.)	Sheets: Cold-Rolled (15 gage)	Sheets: Galvanized (10 gage)††	Strip: Hot-Rolled	Plates	Shapes: Standard Structure	Bars: Hot-Rolled (merchant)	Bars: Cold-Finished	Alloy Bars: Hot-Rolled 4615 As rolled	Alloy Bars: Hot-Rolled 4140 Annealed	Alloy Bars: Cold-Drawn 4615 As rolled	Alloy Bars: Cold-Drawn 4140 Annealed
Atlanta		8.59	9.87	10.13	8.64	8.97	9.05	9.01	10.68	.....	.....	.....	.....
Baltimore	$.18	8.10	9.00	9.78	8.80	8.76	8.60	8.75	12.43	16.28	15.28	19.83	19.08
Birmingham		8.18	9.45	10.46	8.23	8.56	8.64	8.60	10.56*	.....	.....	.....	.....
Boston	.10	9.48	10.54	11.55	9.52	9.82	9.73	9.83	13.28*	16.38	15.38	19.93	19.18
Buffalo	.15	8.40	9.15	11.22	8.65	9.05	9.05	8.95	11.15*	16.34	15.15	19.01	18.95
Chicago	.15	8.35	9.60	10.25	8.38	8.71	8.79	8.75	8.95	15.80	14.80	19.35	18.60
Cincinnati	.15	8.49	9.65	10.25	8.69	9.08	9.33	9.07	9.46	15.61	15.11	18.96	18.91
Cleveland	.15	8.33	9.60	10.35	8.48	8.94	9.16	8.84	11.95*	15.89	14.89	19.29	18.69
Denver	.20	9.60	11.84	12.94	9.63	9.96	10.04	10.00	11.19	.....	.....	.....	20.84
Detroit	.15	8.58	9.85	10.60	8.73	9.06	9.33	9.05	9.30	15.46	15.06	18.81	18.86
Houston		7.10	8.40	.....	7.25	7.70	7.25	7.20	11.10	16.20	15.25	19.65	18.95
Kansas City	.20	9.02	10.27	10.82	9.05	9.38	9.46	9.42	9.87	20.02	15.47	20.02	19.27
Los Angeles		8.25	10.30	12.10	8.90	8.85	8.70	8.75	12.10*	17.05	16.10	21.05	20.35
Memphis	.15	8.55	9.80	.....	8.60	8.93	9.01	8.97	12 11*	.....	.....	.....	.....
Milwaukee	.15	8.48	9.73	10.38	8.51	8.84	9.00	8.88	9.18	15.93	14.93	19.48	18.73
New York	.10	8.97	10.23	10.66	9.41	9.53	9.45	9.67	13.31*	16.19	15.19	19.74	18.99
Norfolk	.20	8.20	.....	.....	8.90	8.65	9.20	8.90	10.70	.....	.....	.....	.....
Philadelphia	.10	8.10	9.00	10.02	8.79	8.87	8.60	8.75	11.61*	16.11	15.11	19.66	18.91
Pittsburgh	.15	8.33	9.60	10.60	8.48	8.71	8.79	8.75	10.95*	15.89	14.89	19.35	18.60
Portland		10.00[1]	11.75[2]	13.30[3]	11.95[4]	11.50[5]	11.10[6]	9.85[7]	16.00	18.50	17.45	20.75	20.25
San Francisco	.10	9.45	10.85	11.10	9.55	9.70	9.60	9.80	13.10	17.05	16.10	21.05	20.35
Seattle		9.95	11.15	12.20	10.00	9.70	9.80	10.10	14.05	17.15	16.35	20.65	20.15
Spokane	.15	10.10	11.30	12.15	10.15	9.85	9.95	10.25	14.20	.....	17.35	21.55	21.05
St. Louis	.15	8.69	9.94	10.61	8.74	9.08	9.25	9.12	9.56	16.16	15.16	19.71	18.96
St. Paul	.15	8.94	10.19	10.86	8.99	9.45	9.53	9.37	9.81	.....	15.41	.....	19.21

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 4999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may be combined with each other for quantity. **All sizes except 18 and 16 gage.

†† 10¢ zinc. ‡ Deduct for country delivery. * C1018—1 in. rounds. [1] 10 ga. x 36" x 120"; [2] 20 ga. x 36" x 120"; [3] 26 ga. x 30" x 96"; [4] ⅛" x 1" in lots of 1000 to 9999; [5] sheared plate ¼" x 84" in lots of 1000 to 9999; [6] 3" x 5.70" in lots of 1000 to 9999; [7] M-1020—1-in. rounds in lots of 1000 to 9999.

(Effective July 14, 1958)

FINE PATTERN on 11" diameter "plunger" forms molding surface for press to make abrasive wheels. The Carborundum Company.

Airkool-S retains precise size and shape through heat treatment

Forming this precise pattern is easily accomplished with Airkool-S, a tough, sulphur-bearing, air-hardening tool and die steel with good machinability. Its excellent nondeforming properties are important too, because this pattern must be retained, without distortion, through heat treatment.

Because Crucible Airkool-S is consistently uniform and clean, no objectionable irregularities appear on this fine pattern. Furthermore, Airkool-S is much more abrasion resistant than typical oil-hardening tool steels, and is substantially tougher than high-carbon, high-chromium types.

Stocks of Airkool-S and dozens of other special tool steels are maintained in all Crucible warehouses—in a wide range of sizes. *Crucible Steel Company of America, Dept. TG06, The Oliver Building, Mellon Square, Pittsburgh 22, Pennsylvania.*

CRUCIBLE STEEL COMPANY OF AMERICA

Canadian Distributor—Railway & Power Engineering Corp., Ltd.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	per lb	SAE
18	4	1	—	—	$1.795	T-1
18	4	1	—	5	2.50	T-4
18	4	2	—	—	1.96	T-2
1.5	4	1.5	8	—	1.155	M-1
6	4	3	6	—	1.545	M-3
6	4	2	5	—	1.30	M-2
High-carbon chromium					.925	D-3, D-5
Oil hardened manganese					.475	O-2
Special carbon					.36	W-1
Extra carbon					.36	W-1
Regular carbon					.305	W-1

Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

CLAD STEEL

Base prices, cents per lb f.o.b.

	Cladding	Plate (*A3, J2, L4, C4*) 10 pct	Plate (*A3, J2, L4, C4*) 15 pct	Plate (*A3, J2, L4, C4*) 20 pct	Sheet (*I2*) 20 pct
Stainless Type	302	.....	.....	.....	37.50
	304	37.95	42.25	46.70	40.00
	316	44.00	49.50	54.50	58.75
	321	40.05	44.60	49.30	47.25
	347	42.40	47.55	52.80	57.00
	405	29.85	33.35	36.85	.....
	410	29.55	33.10	36.70	.....
	430	29.80	33.55	37.25	.....

CR Strip (S9) Copper, 10 pct, 2 sides, 38.75; 1 side, 33.10.

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Screw Spikes	Tie Plates	Track Bolts Untreated
Bessemer *U1*	5.525	6.50	6.975	.....	.....	.....	.....
Cleveland *R3*	.....	.....	.....	.....	.....	.....	14.75
So. Chicago *R3*	.....	.....	.....	9.75	.....	.....	.....
Ensley *T2*	5.525	6.50	.....	.....	.....	.....	.....
Fairfield *T2*	.....	6.50	.....	9.75	.....	6.60	.....
Gary *U1*	5.525	.....	.....	.....	.....	6.60	.....
Huntington *C16*	.....	6.50	.....	.....	.....	.....	.....
Ind. Harbor *I5*	5.525	.....	6.975	9.75	.....	6.60	.....
Ind. Harbor *Y1*	.....	.....	.....	9.75	.....	.....	.....
Johnstown *B3*	.....	6.50	.....	.....	.....	.....	.....
Joliet *U1*	.....	.....	6.975	.....	.....	.....	.....
Kansas City *S2*	.....	.....	.....	9.75	.....	.....	14.75
Lackawanna *B3*	5.525	6.50	6.975	.....	.....	6.60	.....
Lebanon *B3*	.....	.....	6.975	.....	14.50	.....	14.75
Minnequa *C6*	5.525	7.00	6.975	9.75	.....	6.60	14.75
Pittsburgh *P5*	.....	.....	.....	.....	.....	.....	14.75
Pittsburgh *J3*	.....	.....	.....	9.75	.....	.....	.....
Seattle *B2*	.....	.....	.....	10.25	.....	6.75	15.75
Steelton *B3*	5.525	.....	6.975	.....	.....	6.60	.....
Struthers *Y1*	.....	.....	.....	9.75	.....	.....	.....
Torrance *C7*	.....	.....	.....	.....	.....	6.75	.....
Williamsport *S5*	.....	6.50	.....	.....	.....	.....	.....
Youngstown *R3*	.....	.....	.....	9.75	.....	.....	.....

COKE

Furnace, beehive (f.o.b.) Connellsville, Pa.	Net-Ton $15.00 to $15.75
Foundry, beehive (f.o.b.)	$17.50 to $19.00
Foundry oven coke	
Buffalo, del'd	$31.75
Detroit, f.o.b.	30.50
New England, del'd	31.55
Kearney, N. J., f.o.b.	29.75
Philadelphia, f.o.b.	29.50
Swedeland, Pa., f.o.b.	29.50
Painesville, Ohio, f.o.b.	30.50
Erie, Pa., f.o.b.	30.50
Cleveland, del'd	32.65
Cincinnati, del'd	31.84
St. Paul, f.o.b.	29.75
St. Louis, f.o.b.	31.50
Birmingham, f.o.b.	28.85
Milwaukee, f.o.b.	30.50
Neville, Is., Pa.	29.25

LAKE SUPERIOR ORES

51.50% Fe natural content, delivered lower Lake ports. Prices for 1958 season. Freight changes for seller's account.

	Gross Ton
Openhearth lump	$12.70
Old range, bessemer	11.85
Old range, nonbessemer	11.70
Mesabi, bessemer	11.60
Mesabi, nonbessemer	11.45
High phosphorus	11.45

ELECTRICAL SHEETS

22-Gage F.o.b. Mill Cents Per Lb	Hot-Rolled (Cut Lengths)*	Cold-Rolled (Coiled or Cut Length) Semi-Processed	Cold-Rolled (Coiled or Cut Length) Fully Processed
Field	.....	9.625	.....
Armature	11.10	10.85	11.35
Elect.	11.80	11.55	12.05
Special Motor	.....	12.10	.....
Motor	12.90	12.65	13.15
Dynamo	13.95	13.70	14.20
Trans. 72	15.00	14.75	15.25
Trans. 65	15.55	Grain Oriented	
Trans. 58	16.05	Trans. 66	20.20
Trans. 52	17.10	Trans. 80	19.20
		Trans. 73	19.70

Producing points: Beech Bottom (*W5*); Brackenridge (*A5*); Granite City (*G2*) $2 a ton higher; Indiana Harbor (*I5*); Mansfield (*E2*); Newport, Ky. (*A9*); Niles, O. (*N3*); Vandergrift (*U1*); Warren, O. (*R3*); Zanesville. Butler (*A7*).

ELECTRODES

Cents per lb. f.o.b. plant, threaded, with nipples, unboxed.

GRAPHITE Diam. (In.)	Length (In.)	Price	CARBON* Diam. (In.)	Length (In.)	Price
24	84	26.00	40	100, 110	10.70
20	72	25.25	35	110	10.70
18	72	25.75	30	110	10.85
14	72	25.75	24	72 to 84	11.25
12	72	26.25	20	90	11.00
10	60	28.00	17	72	11.40
10	48	28.50	14	72	11.85
7	60	28.25	12	60	12.95
6	60	31.50	10	60	13.00
4	40	35.00	8	60	13.30
3	40	37.00			
2½	30	39.25			
2	24	60.75			

* Prices shown cover carbon nipples.

REFRACTORIES

Fire Clay Brick

Carloads per 1000

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5.00)	$135.00
No. 1 Ohio	120.00
Sec. Quality, Pa., Md., Ky., Mo., Ill.	120.00
No. 2 Ohio	103.00
Ground fire clay, net ton, bulk (except Salina, Pa., add $2.00)	21.50

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$150.00
Childs, Hays, Pa.	155.00
Chicago District	160.00
Western Utah	175.00
California	180.00
Super Duty Hays, Pa., Athens, Tex., Windham, Warren, O., Morrisville	157.00-160.00
Silica cement, net ton, bulk, Latrobe	28.50
Silica cement, net ton, bulk, Chicago	25.50
Silica cement, net ton, bulk, Ensley, Ala.	26.50
Silica cement, net ton, bulk, Mt. Union	24.50
Silica cement, net ton, bulk, Utah and Calif.	37.00

Chrome Brick

Per net ton

Standard chemically bonded, Balt.	$105.00
Standard chemically bonded, Curtiner, Calif.	115.00
Burned, Balt.	99.00

Magnesite Brick

Standard Baltimore	$131.00
Chemically bonded, Baltimore	116.00

Grain Magnesite

St. ⅝ to ½-in. grains

Domestic, f.o.b. Baltimore in bulk.	$73.00
Domestic, f.o.b. Chewalah, Wash., Luning, Nev. in bulk	46.00
in sacks	52.00-54.00

Dead Burned Dolomite

Per net ton

F.o.b. bulk, producing points in: Pa., W. Va., Ohio	$16.75
Midwest	17.00
Missouri Valley	15.00

(Effective July 14, 1958)

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard Q Coated Nails Col	Woven Wire Fence Col	"T" Fence Posts Col	Single Loop Bale Ties Col	Galv. Barbed and Twisted Barbless Wire Col	Merch. Wire Ann'ld ¢/lb.	Merch. Wire Galv. ¢/lb.
Alabama City *R3*	173	187	...	212	193	8.65	9.20
Aliquippa *J5***	173	190	...	...	190	8.65	9.325
Atlanta *A8***	175	192	...	214	198	8.75	9.425
Bartonville *K2***	175	192	178	214	198	8.75	9.425**
Buffalo *W6*	.....	.....	...	...	...	8.65	8.95*
Chicago *N4*****	173	190	172	212	196	8.65	9.325
Cleveland *A6*	.....	.....	...	...	...	.....	.....
Cleveland *A5*	.....	.....	...	...	...	8.65	.....
Crawf'dsv. *M4***	175	192	...	214	198	8.75	9.425
Donora, Pa. *A5*	173	187	...	212	193	8.65	9.20
Duluth *A5*	173	187	...	212	193	8.65	9.20
Fairfield, Ala. *T2*	173	187	...	212	193	8.65	9.20
Galveston *D4*	9.10‡	.....	...	...	...	.....	.....
Houston *S2*	178	192	...	217	198	8.90	9.45
Jacksonville *M4*	184-1	197	...	219	203	9.00	9.675
Johnstown *B3***	173	190	172	...	196**	8.65	9.325**
Joliet, Ill. *A5*	173	187	...	212	193	8.65	9.20
Kokomo *C9**	175	189	...	214	195*	8.75	9.30*
L. Angeles *B2*****	.....	.....	...	...	...	9.60	10.275
Kansas City *S2**	178	192	...	217	198*	8.90	9.45*
Minnequa *C6†*	178	192	177	217	198†	8.90	9.45†
Monessen *P6*	.....	.....	...	...	193	8.65	9.20
Palmer, Mass. *W6*	.....	.....	...	...	...	8.95	9.50*
Pittsburg, Cal. *C7*	192	210	...	...	213	9.60	10.15
Rankin, Pa. *A5*	173	187	...	...	193	8.65	9.20
So. Chicago *R3*	173	187	...	...	193	8.65	9.20
S. San Fran. *C6†*	.....	.....	...	236	...	9.60	10.15†
Sparrows Pt. *B3***	175	.....	...	214	198	8.75	9.425
Sterling, Ill. *N4*****	175	192	172	214	195	8.75	9.425
Struthers, O. *Y1**	.....	.....	...	...	...	8.65	9.30
Worcester *A5*	179	.....	...	...	...	8.95	9.50
Williamsport *S5*	.....	.....	...	...	...	.....	.....

* Zinc less than .10¢.
** 11-12¢ zinc.
*** .10¢ zinc.
† Plus zinc extras.
‡ Wholesalers only.

C-R SPRING STEEL

Cents Per Lb F.o.b. Mill	CARBON CONTENT 0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.35
Baltimore, Md. *T8*	9.50	10.70	12.90	15.90	18.85
Bristol, Conn. *W12*	.....	10.70	12.90	16.10	19.30
Boston *T8*	9.50	10.70	12.90	15.90	18.85
Buffalo, N. Y. *R7*	8.95	10.40	12.60	15.60	18.55
Carnegie, Pa. *S9*	8.95	10.40	12.60	15.60	18.55
Cleveland *A5*	8.95	10.40	12.60	15.60	18.55
Dearborn *S1*	9.05	10.50	12.70	.....	.....
Detroit *D1*	9.05	10.50	12.70	15.70	.....
Detroit *D2*	9.05	10.50	12.70	.....	.....
Dover, O. *G4*	8.95	10.40	12.60	15.60	18.55
Evanston, Ill. *M8*	9.05	10.40	12.60	.....	.....
Franklin Park, Ill. *T8*	9.05	10.40	12.60	15.60	18.55
Harrison, N. J. *C11*	.....	.....	12.80	16.10	19.30
Indianapolis *J3*	9.10	10.55	12.60	15.60	18.55
Los Angeles *C1*	11.15	12.60	14.80	17.80	.....
New Britain, Conn. *S7*	9.40	10.70	12.90	15.90	18.85
New Castle, Pa. *B4*	8.95	10.40	12.60	15.60	.....
New Haven, Conn. *D1*	9.40	10.70	12.90	15.90	.....
Pawtucket, R. I. *N7*	9.50	10.70	12.90	15.90	18.85
Riverdale, Ill. *A1*	9.05	10.40	12.60	15.60	18.55
Sharon, Pa. *S1*	8.95	10.40	12.60	15.60	18.55
Trenton, *R4*	.....	10.70	12.90	16.10	19.30
Wallingford *W1*	9.40	10.70	12.90	15.90	18.55
Warren, Ohio *T4*	8.95	10.40	12.60	15.60	18.75
Worcester, Mass. *A5*	9.50	10.70	12.90	15.90	18.85
Youngstown *J3*	8.95	10.40	12.60	15.60	18.55

BOILER TUBES

$ per 100 ft. carload lots, cut 10 to 24 ft. F.o.b. Mill	Size OD-In.	Size B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.
Babcock & Wilcox	2	13	36.34	42.56	35.22
	2½	12	48.94	57.31	47.43
	3	12	56.51	66.18	54.77
	3½	11	65.97	77.25	63.93
	4	10	87.61	102.59	85.53
National Tube	2	13	36.34	42.56	35.22
	2½	12	48.94	57.31	47.43
	3	12	56.51	66.18	54.77
	3½	11	65.97	77.25	63.93
	4	10	87.61	102.59	85.53
Pittsburgh Steel	2	13	36.34	42.56	.....
	2½	12	48.94	57.31	.....
	3	12	56.51	66.18	.....
	3½	11	65.97	77.25	.....
	4	10	87.61	102.59	.....

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Birdsboro, Pa. *B6*	68.00	68.50	69.00	69.50	.....
Birmingham *R3*	62.00	62.50*	.....	.....	.....
Birmingham *W9*	62.00	62.50*	66.50	.....	.....
Birmingham *U4*	62.00	62.50*	66.50	.....	.....
Buffalo *R3*	66.00	66.50	67.00	67.50	.....
Buffalo *H1*	66.00	66.50	67.00	67.50	.....
Buffalo *W6*	66.00	66.50	67.00	67.50	.....
Chester *P2*	66.50	67.00	67.50	.....	.....
Chicago *I4*	66.00	66.50	66.50	67.00	.....
Cleveland *A5*	66.00	66.50	66.50	67.00	71.00†
Cleveland *R3*	66.00	66.50	66.50	67.00	.....
Duluth *I4*	66.00	66.50	66.50	67.00	71.00†
Erie *I4*	66.00	66.50	66.50	67.00	71.00†
Everett *M6*	67.50	68.00	68.50	.....	.....
Fontana *K1*	75.00	75.50	.....	.....	.....
Geneva, Utah *C7*	66.00	66.50	.....	.....	.....
Granite City *G2*	67.90	68.40	68.90	.....	.....
Hubbard *Y1*	.....	.....	66.50	.....	.....
Ironton, Utah *C7*	66.00	66.50	.....	.....	.....
Midland *C11*	66.00	.....	.....	.....	.....
Minnequa *C6*	68.00	68.50	69.00	.....	.....
Monessen *P6*	66.00	.....	.....	.....	.....
Neville Is. *P4*	66.00	66.50	66.50	67.00	71.00†
N. Tonawanda *T1*	.....	66.50	67.00	67.50	.....
Sharpsville *S3*	66.00	.....	66.50	67.00	.....
So. Chicago *R3*	66.00	66.50	66.50	67.00	.....
So. Chicago *W8*	66.00	.....	66.50	67.00	.....
Swedeland *A2*	68.00	68.50	69.00	69.50	.....
Toledo *I4*	66.00	66.50	66.50	67.00	.....
Troy, N. Y. *R3*	68.00	68.50	69.00	69.50	74.00
Youngstown *Y1*	.....	.....	66.50	67.00	.....

DIFFERENTIALS: Add, 75¢ per ton for each 0.25 pct silicon or portion thereof over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.25 pct manganese or portion thereof over 1 pct, $2 per ton for 0.50 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Add $1.00 for 0.31-0.69 pct phos.

Silvery Iron: Buffalo (6 pct), *H1*, $79.25; Jackson *J1*, *I4* (Globe Div.), $78.00; Niagara Falls (15.01-15.50), $101.00; Keokuk (14.01-14.50), $103.50; (15.51-16.00), $106.50. Add $1.00 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 18 pct. Add $1.25 for each 0.50 pct manganese over 1.00 pct. Bessemer silvery pig iron (under .10 pct phos.): $64.00. Add $1.00 premium for all grades silvery to 18 pct.

† Intermediate low phos.

STAINLESS STEEL

Base price cents per lb f.o.b. mill

Product	201	202	301	302	303	304	316	321	347	403	410	416	430
Ingots, reroll.	22.00	23.75	23.25	25.25	—	27.00	39.75	32.25	37.00	—	16.75	—	17.00
Slabs, billets	27.00	27.00	28.00	31.50	32.00	33.25	49.50	40.00	46.50	—	21.50	—	21.75
Billets, forging	—	36.50	37.25	38.00	41.00	40.50	62.25	47.00	55.75	32.00	28.25	28.75	28.75
Bars, struct.	42.00	43.00	44.25	45.00	48.00	47.75	73.00	55.50	64.75	37.75	33.75	34.25	34.25
Plates	44.25	45.00	46.25	47.25	50.00	50.75	76.75	59.75	69.75	40.25	35.00	36.75	36.00
Sheets	48.50	49.25	51.25	52.00	—	55.00	80.75	65.50	79.25	48.25	40.25	—	40.75
Strip, hot-rolled	36.00	39.00	37.25	40.50	—	44.25	69.25	53.50	63.50	—	31.00	—	32.00
Strip, cold-rolled	45.00	49.25	47.50	52.00	—	55.00	80.75	65.50	79.25	48.25	40.25	—	40.75
Wire CF; Rod HR	40.00	46.75	42.00	42.75	45.50	45.25	69.25	52.50-52.75	61.50	35.75	32.00	32.50	32.50

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., *C11*; Brackenridge, Pa., *A3*; Butler, Pa., *A7*; Vandergrift, Pa., *U1*; Washington, Pa., *W2*, *J2*, Baltimore, *E1*; Middletown, O., *A7*; Massillon, O., *R3*; Gary, *U1*; Bridgeville, Pa., *U2*; New Castle, Ind., *I2*; Detroit, *M2*.

Strip: Midland, Pa., *C11*; Waukegan, Cleveland, *A5*; Carnegie, Pa., *S9*, McKeesport, Pa., *F1*; Reading, Pa., *C2*; Washington, Pa., *W2*; W. Leechburg, Pa., *A3*, Bridgeville, Pa., *U2*; Detroit, *M2*; Canton, Massillon, O., *R3*; Harrison, N. J., *D3*; Youngstown, *J3*; Sharon, Pa., *S1*; Butler, Pa., *A7*; Wallingford, Conn., *U3* (plus further conversion extras); *W1* (.25¢ per lb higher); New Bedford, Mass., *R6*; Gary, *U1* (.25¢ per lb higher).

Bar: Baltimore, *A7*; S. Duquesne, Pa., *U1*, Munhall, Pa., *U1*; Reading, Pa., *C2*; Titusville, Pa., *U2*; Washington, Pa., *J2*; McKeesport, Pa., *U1*, *F1* Bridgeville, Pa., *U2*; Dunkirk, N. Y., *A5*; Massillon, O., *R5*, S. Chicago, *U1*; Syracuse, N. Y., *C11*; Watervliet, N. Y., *A3*; Waukegan, *A5*; Canton, O., *T5*, *R3*; Ft. Wayne, *I4*; Detroit, *R5*; Gary, *U1*; Owenboro, Ky., *G5*; Bridgeport, Conn., *N8*.

Wire: Waukegan, *A5*; Massillon, O., *R3*; McKeesport, Pa., *F1*; Ft. Wayne, *J4*; Harrison, N. J., *D3*; Baltimore, *A7*; Dunkirk, *A3*; Monessen, *P1*; Syracuse, *C11*; Bridgeville, *U2*.

Structurals: Baltimore, *A7*; Massillon, O., *R3*; Chicago, Ill., *J4*; Watervliet, N. Y., *A3*; Syracuse, *C11*; S. Chicago, *U1*.

Plates: Brackenridge, Pa., *A3*; Chicago, *U1*; Munhall, Pa., *U1*; Midland, Pa., *C11*; New Castle, Ind., *I2*; Middletown; *A7*; Washington, Pa., *J2*; Cleveland, Massillon, *R3*; Coatesville, Pa., *C13*; Vandergrift, Pa., *U1*; Gary, *U1*.

Forging billets: Midland, Pa., *C11*; Baltimore, *A7*; Washington, Pa., *J2*; McKeesport, *F1*; Massillon, Canton, O., *R5*; Watervliet, *A3*; Pittsburgh, Chicago, *U1*; Syracuse, *C11*; Detroit, *R5*; Munhall, Pa., S. Chicago, *U1*; Owensboro, Ky., *G5*; Bridgeport, Conn., *N8*.

(Effective July 14, 1958)

FERROALLOY PRICES

Ferrochrome

Cents per lb contained Cr, lump, bulk, carloads, del'd. 67-71% Cr, .30-1.00% max. Si.

0.02% C....	41.00	0.50% C....	38.00
0.05% C....	39.00	1.00% C....	37.75
0.10% C....	38.50	1.50% C....	37.50
0.20% C....	38.25	2.00% C....	37.25

4.00-4.50% C, 60-70% Cr, 1-2% Si.. 28.75
3.50-5.00% C, 57-64% Cr, 2.00-4.50% Si 27.50
0.025% C (Simplex) 36.75
0.10% C, 52-57% Cr, 2.00% max Si. 37.50
7-8½% max C, 50-55% Cr, 3-6% max Si 22.50
7-8½% max C, 50-55% Cr, 3% max Si 25.00

High Nitrogen Ferrochrome

Low-carbon type 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome max. 0.10% C price schedule. Add 5¢ for each additional 0.25% of N.

Chromium Metal

Per lb chromium, contained, packed, delivered, ton lots, 97% min. Cr, 1% max. Fe.

0.10% max. C	$1.31
0.50% max. C	1.31
9 to 11% C, 88-91% Cr, 0.75% Fe...	1.40

Electrolytic Chromium Metal

Per lb of metal 2" x D plate (⅛" thick) delivered packed, 99.80% min. Cr. (Metallic Base) Fe 0.20 max.

Carloads	$1.29
Ton lots	1.31
Less ton lots	1.33

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-45%, C 0.05% max.) Carloads, delivered, lump, 3-in. x down, packed.

Price is sum of contained Cr and contained Si.

	Cr	Si
Carloads, bulk	27.50	14.20
Ton lots	32.75	15.65
Less ton lots	34.35	17.30

Calcium-Silicon

Per lb of alloy, lump, delivered, packed. 30-33% Cr, 60-65% Si, 3.00 max. Fe.

Carloads	25.65
Ton lots	27.95
Less ton lots	29.45

Calcium-Manganese—Silicon

Cents per lb of alloy, lump, delivered, packed.
16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	24.25
Ton lots	26.15
Less ton lots	27.15

SMZ

Cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ½ in. x 12 mesh.

Ton lots	21.15
Less ton lots	22.40

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.

Carload lots	18.45
Ton lots	19.95
Less ton lots	21.20

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	19.20
Ton lots to carload packed	21.15
Less ton lots	22.40

Ferromanganese

Maximum base price, f.o.b., lump size, base content 74 to 76 pct Mn.

Producing Point	Cents per-lb
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	12.25
Johnstown, Pa.	12.25
Neville Island, Pa	12.25
Sheridan, Pa.	12.25
Philo, Ohio	12.25
S. Duquesne	12.25

Add or substract 0.1¢ for each 1 pct Mn above or below base content.

Briquets, delivered, 66 pct Mn:

Carloads, bulk	14.80
Ton lots packed in bags	17.20

Spiegeleisen

Per gross ton, lump, f.o.b. Palmerton, Pa., and Neville Island, Pa.

Manganese	Silicon	
16 to 19%	3% max.	$100.50
19 to 21%	3% max.	102.50
21 to 23%	3% max.	105.00

Manganese Metal

2 in. x down, cents per pound of metal delivered.

95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.

Carload, packed	45.75
Ton lots	47.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound.

Carloads	34.00
Ton lots	36.00
250 to 1999 lb	38.00
Premium for Hydrogen - removed metal	0.75

Medium Carbon Ferromanganese

Mn 80 to 85%, C 1.25 to 1.50, Si 1.50% max., carloads, lump, bulk, delivered, per lb of contained Mn 25.50

Low-Carb Ferromanganese

Cents per pound Mn contained, lump size, del'd Mn 85-90%.

	Carloads	Ton (Bulk)	Less
0.07% max. C, 0.06% P, 90% Mn	37.15	39.95	41.15
0.07% max. C	35.10	37.90	39.10
0.10% max. C	34.35	37.15	38.35
0.15% max. C	33.60	36.40	37.60
0.30% max. C	32.10	34.90	36.10
0.50% max. C	31.60	34.40	35.60
0.75% max. C, 80-85% Mn, 5.0-7.0% Si ...	28.60	31.40	32.60

Silicomanganese

Lump size, cents per pound of metal, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢ f.o.b. shipping point.

Carloads bulk	12.80
Ton lots, packed	14.45
Briquet contract basis carloads, bulk, delivered, per lb of briquet	15.10
Packed, pallets, 3000 lb up to carloads	16.50

Silvery Iron (electric furnace)

Si 15.50 to 16.00 pct., f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $106.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $93.00.

Silicon Metal

Cents per pound contained Si, lump size, delivered, packed.

	Ton lots, packed	Carloads, packed
96.75% Si. 1.25% Fe..	24.20	22.90
98% Si, 0.75% Fe	24.95	23.65

Silicon Briquets

Cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si, briquets.

Carloads, bulk	7.70
Ton lots, packed	10.50

Electric Ferrosilicon

Cents per lb contained Si, lump, bulk, carloads, f.o.b. shipping point.

50% Si....	14.20	75% Si....	16.40
65% Si....	15.25	85% Si....	18.10
	90% Si....	19.50	

Ferrovanadium

50-55% V delivered, per pound, contained V, in any quantity.

Openhearth	3.20
Crucible	3.30
High speed steel (Primos)	3.40

Calcium Metal

Eastern zone, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
100 to 1999 lb..	2.40	3.30	4.55

(Effective July 14, 1958)

Alsifer, 20% Al, 40% Si, 40% Fe, f.o.b. Suspension Bridge, N. Y., per lb.

Carloads, bulk	10.35¢
Ton lots	11.70¢

Calcium molybdate, 43.6-46.6% f.o.b. Langeloth, Pa., per pound contained Mo $1.28

Ferrocolumbium, 50-50%, 2 in. x D, delivered per pound contained Cb.

Ton lots	$4.00
Less ton lots.....	4.05

Ferro-tantalum-columbium, 20% Ta, 40% Cb, 0.30% C, del'd ton lots, 2-in. x D per lb con't Sb plus Ta $3.80

Ferromolybdenum, 55-75%, 200-lb containers, f.o.b. Langeloth, Pa., per pound contained Mo.. $1.68

Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $4.00 unitage, per gross ton $120.00
10 tons to less carload $131.00

Ferrotitanium, 40% regular grade 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti $1.35

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti $1.50
Less ton lots $1.54

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton $240.00

Ferrotungsten, ¼ x down packed, per pounds contained W, ton lots delivered ..... $2.15 (nominal)

Molybdic oxide, briquets per lb contained Mo, f.o.b. Langeloth, Pa. $1.41
bags, f.o.b. Washington, Pa., Langeloth, Pa. $1.38

Simanal, 20% Si, 20% Mn, 20% Al, f.o.b. Philo, Ohio, freight allowed per lb.

Carload, bulk lump	18.50¢
Ton lots, packed lump	20.50¢
Less ton lots	21.00¢

Vanadium oxide, 86-89% V_2O_5 per pound contained V_2O_5 .... $1.38

Zirconium, per lb of alloy

35-40% f.o.b. freight allowed, carloads, packed	27.25¢
12-15%, del'd lump, bulk-carloads	9.25¢

Boron Agents

Borosil, per lb of alloy del. f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B
2000 lb carload $5.50

Bortram, f.o.b. Niagara Falls.

Ton lots per pound	45¢
Less ton lots, per pound	50¢

Corbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4-5-7.5%, f.o.b., Suspension Bridge, N. Y., freight allowed.
Ton lots per pound ..... 14.00¢

Ferroboron, 17.50 min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D, ton lots... $1.20
F.o.b. Wash., Pa., Niagara Falls, N. Y., delivered 100 lb up

10 to 14% B	.85
14 to 19%	1.20
19% min. B	1.50

Grainal, f.o.b. Cambridge, O., freight allowed, 100 lb and over

No. 1	$1.05
No. 79	50¢

Manganese-Boron, 75.00% Mn, 15.20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd.

Ton lots (packed)	$1.46
Less ton lots (packed)	1.57

Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, del'd less ton lots 2.15

Inquiries Plentiful At Philadelphia

Used machinery dealers there find buyers are still interested in the market.

But converting prospects into customers takes plenty of hard selling.

▪ Philadelphia area used machinery dealers are getting plenty of inquiries. The problem is converting them into sales.

While customers are interested in what's offered they are still reluctant to buy. As a result dealers are using every sales method in the books to break down this resistance.

Like Pulling Teeth — "Most buyers just lack confidence," says one seller. "They've usually got the money to spend but must be convinced this is the right time to spend it. I point out to them that plenty of good, late-model tools are available at reasonable prices. And that they can keep ahead of competition by up-dating equipment. But getting orders is like pulling teeth."

Another dealer who describes the market as "rough" says his sales force is doing half the volume of a year ago. "And we've got four times as much machinery to sell," he adds.

What Inquiries Mean — Most dealers say inquiries were never more numerous. One reports he had more calls in June than in all the months since the year began. However, another seller doesn't believe all this activity adds up to sales.

"More of our customers," he explains, "are bidding on jobs in an effort to get some work into their shops." "The number of bidders is three or four times what it was a year ago. Shops lacking equipment needed if they get the work are checking around to be sure they can line it up. Naturally only one bidder gets the job. And sometimes the successful one already has all the equipment needed."

Disposal Sales Help—While the market continues slow some dealers are helping their incomes by conducting plant liquidations. On a commission basis they are handling machinery disposals for firms going out of business. "These sales bring out whatever buyers there are in the market," a dealer liquidator reports. He adds wryly that while these disposal sales are welcome he'd rather see the plants keep their doors open as future customers for his services.

Dealers Determined — With the market at low levels prices are soft. Customers with cash to spend can drive a hard bargain. Generally, however, late-model equipment in good condition still brings a good price. At auctions these machines, forming about 10 to 15 pct of the total offered, are usually sold quickly. The balance of the equipment goes more slowly at reduced levels.

Dealers are not too confident about the sales pattern for the balance of the year. "Call us determined rather than optimistic," one says. There's no widespread cheer among sellers despite June business that was, for many, above May levels and much better than expected.

CONSIDER GOOD USED EQUIPMENT FIRST

BALER
Model #122-PX-60 Logemann, Balling Chamber 60 x 14 x 18"

BENDER & STRAIGHTENER
Pels Type JH All Steel Bender & Straightener for Beams, Channels, Angles, Tees—Angles Equal & Tees 8 x 8 x 1¼"

BENDING ROLLS
8' x ¼" Bertsch Initial Type
12' x 5/16" Bertsch Initial Type
20' x ¼" Niles Pyramid Type
12' x 3/16" Bertsch Initial Type—NEW

BRAKES—PRESS TYPE
10" x ⅛" & 12" x ⅛" Hydraulic—NEW

CRANES—OVERHEAD ELECTRIC TRAVELING

3 ton J&H	56' Span 220/3/60
5 ton Shepard Niles	70' Span 230 Volt D.C.
7½ ton Shaw	40' Span 230 Volt D.C.
8 ton P&H	55' Span 220/3/60
10 ton P&H	39' Span 230 Volt D.C.
10 ton Shaw	48' Span 230 Volt D.C.
10 tton Shaw	120' Span 230 Volt D.C.
15 ton Northern	54' Span 230 Volt D.C.
15 ton Shepard Niles	56' Span 230 Volt D.C.
120 ton Shepard Niles	77" Span 220/3/60

DRAW BENCHES
3000 lb. Draw Bench, 20 ft. Pull
7000 lb. Draw Bench, 51 ft. Pull—New 1956

FORGING MACHINES
1" to 5" Acme, Ajax, National

GRINDER
No. 2 Cincinnati Centerless Grinder—NEW 1956

HAMMERS—BOARD DROP—STEAM DROP—STEAM FORGING 800 lb. to 12,000 lb. incl.

HEADERS
#14 Waterbury Farrel DS OD, Capacity 5/16"
#250C Manville SS SD, Capacity ¼"

LEVELERS—ROLLER
37" Torrington, 19 Rolls 1 31/32" dia.
44" Newboldt, 9 Rolls 4 dia.
60" Aetna Standard, 17 Rolls 4⅜" dia.

MILLING MACHINE—PLANER TYPE
42" x 42" x 14' Ingersoll 2 Rail & 2 Side Heads

PRESSES—HYDRAULIC
600 ton HPM Fastraverse, Bed 36" x 36"
600 ton Elmes 36" Stroke, 48 x 45" Bet Cols.
1000 ton HPM Fastraverse, Bed 48" x 74", 36" Stroke
1500 ton Mesta Steam Hydr. Forging Press

PRESSES—STRAIGHT SIDE
100 ton Toledo #57½, 10" Stroke, Bed 20" x 20"
215 ton Clearing, 24" Stroke, Bed 36" x 42"

PRESS—TOGGLE DRAWING
#168⅝ Toledo, 18" Sttroke of Blankholder, 26" Stroke of Plunger, Bed 48" x 51"

PUNCH & SHEAR COMBINATIONS
Buffalo #1½ Ironworker
Cleveland Style C; Arch Jaw, Capy. ¾" x ¾"
Cleveland Style EF, Arch Jaw, Capy. 1¼" x 1"

ROLL—CORRUGATING
#5 Stamco, Capacity 16 Ga. Material, 12' long, 36" wide

ROLLING MILLS
6" x 1" Three Stand Wire, Rolling Mill Complete with Pay Off & Recoiler
6" x 5" Torrington Flat Wire Mill Line
8" x 10" Single Stand Two High
10" x 14" Single Stand Two High
10" x 16" Single Stand Two High
12" x 12" Single Stand Two High
12" x 16" Single Stand Two High
16" x 24" Single Stand Two High
20" x 36" Single Stand Two High

ROLL—FORMING
18 Stand Custom Built, 2½ Shaft, will take 36" wide

ROLLS—PLATE STRAIGHTENERS
108" Bertsch, Seven Rolls 9" Dia.
72" Niles 7 Rolls 9" Dia. Motor Driven

SHEAR—ALLIGATOR
No. 4 Mesta RH LK, Capacity 2" x 12"

SHEAR—ANGLE
6 x 6 x ⅝" Hilles & Jones

SHEAR LINE
36" x .020 Ga. Halliden Shear Line

SHEARS—ROTARY
#40A Quickwork Whiting, 48" Throat, ½" Capy.
#750 Kling, 48' Throat, ¾" Capacity—LATE

SHEARS—SQUARING
6' x 14 Ga. Edwards, Motor Drive—LATE
10' x ¼" Cincinnati
10' x ⅜" Niagara
14 x 3/16" Cincinnati #1814

SLITTERS
24" Blake & Johnson, 3½" Dia. Arbor
92" Mesta Slitting & Trimmer, Capacity 3/16"

STRAIGHTENERS
¼" Lewis 40' with 22 Ft. Cut off
Shuster Shape Straightener, Capy. 1" Hex. Sq. Rd.
Torrington 12-Roll Capy. 1¾" Sq. Etc.
No. 0 Medart 2 Roll, Capacity ¼"-1½" Bars
No. 3 Medart 3 Roll, Capacity to 4½" Tubing

SWAGING MACHINES
#6½A Fenn Capacity 3⅜" Tube 1¼" Solid
10" Die Length Hydraulic Feed, LATE

WIRE DRAWING MACHINE
Type B Morgan 4 Block, Capy. #5 Rod down
Synero BBS8-11 Fine Wire Drawing Machine with Spooler. Capable of starting size .028" dia. finish .003"

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UNITED ENGINEERING RECOILER, 40,000# CAP. 68" WIDTH
YODER UNCOILER, 30,000# CAP. 60" WIDTH
ROLLER LEVELLERS—ALL SIZES
ALLIANCE STEEL MILL TROLLEY
STEEL MILL CRANES
PLATE LEVELLERS

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Mesta, Five stand, Four Hi, 800 H.P. each stand. Complete with all electric, etc. Beautiful condition. Has been running 100 per cent reduction by .072 to .090 at 2000 F.P.M. Roll face 42 inches.

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UNITS OF EVERY SIZE AND DESCRIPTION

SQUIRREL CAGE MOTORS

3 phase, 60 cycle, 220 or 440 volts
(*2300 volts or higher)

H.P.	MAKE	TYPE	SPEED
1750	*G.E.	K	1800
1250	*Al-Ch	ANX	3600
600	West.	CS	720
600	*G.E.	K-6345S	1200
500	*G.E.	K-6345S	1200
500	*G.E.	IK-13A	900
350	*G.E.	KT-559-A	1800
300	*West.	CS-1002	600
250	*West. (TE)	CS-8120S	1800
250	*G.E.	KT-559-S	1800
250	*West.	CS-875-S	1800
250	Brook	RS-28	1200
250	West.	CS-1008	720
200	*G.E.	FT-549	3600
200	*G.E.	I-K-13B	1800
200	West.	CSP-581-S	1800
200	Brook	RS-27	1200
200	G.E.	K-6334-S	1175
200	*West.	CS-930-A	900
200	G.E.	KT-564-S	720
200	*Al-Ch	AN-37-G	720
200	*West.	CS-1010	600
200	Al-Ch	ARW-631	600
150	Cr-Wh	SC-149	3600
150	Al-Ch	AN-30-F	1200
150	West.	CSP-581S	1200
150	*G.E.	KT-559	1200

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3" Ajax susp. sl., air clutch, 1936
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106 ton No. 56 Toledo s.s.c. trim side shear
126 ton No. 56½ Toledo s.s. air clutch, 1942
370 ton No. 18S Cleveland s.s.c.
600 ton No. 644 Toledo knuckle coining
750 ton No. 3 National Maxi. (2), 1945

ROLLS
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No. 18 Kane & Roach straightening roll, 2½"

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180 ton No. 27 Williams & White
BOLT SHAVER. Type KK Economy, hopper
HAMMER. 250 lb. Nazel pneumatic
PUNCH & SHEAR. 38" throat New Doty
MILLER 42" x 42" x 18' Ingersoll, adj. rail
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1008 CFM 100 psi 16-10½ x 8½ Worth. YC. 150 HP 3-60-440—SAR.
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2 (new)	1450	Whse.	80	4160	450
1	930	G.E.	80	2200/440	300
1	700	El. Mchy.	100	440	200
1	450	Whse.	100	2200	128
2	350	G.E.	100	2300	900
1	300	Whse.	80	2300	900
1	300	G.E.	800	2200/440	600

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3-Pole—Electrically Operated

Qu.	Amps.	KV	Make	Type	Int. Cap.
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1	600	69	G.E.	FK-339	500-MVA
1	600	37	G.E.	FHKO-236	500-MVA
1	600	34.5	Al.Ch.	FZO-50-34X	250-MVA
1	400	37	G.E.	FHKO-136	250-MVA
1	400	15	G.E.	FHKO-136	300-MVA
1	600	14.4	G.E.	FLO-14.4-4	250-MVA

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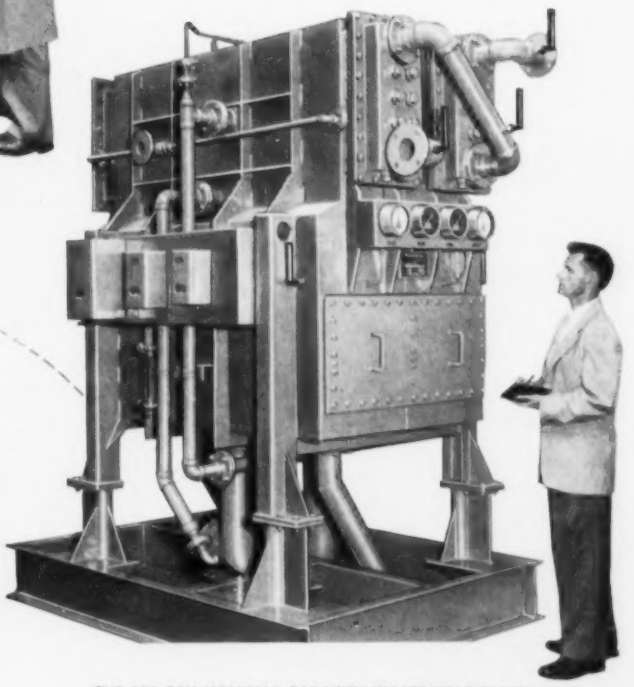

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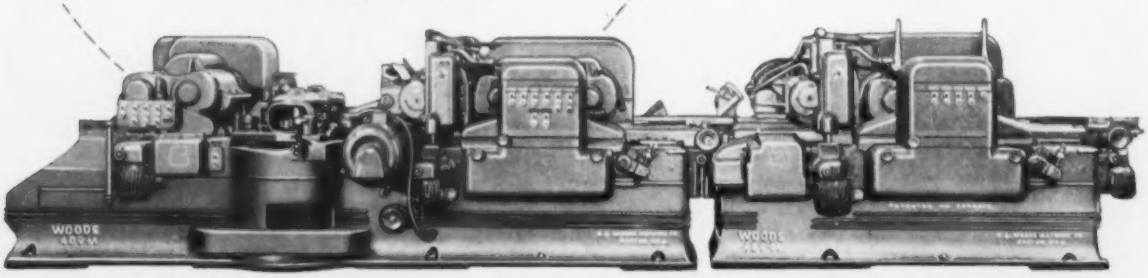

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